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THE WILEY AGRICULTURAL SERIES

EDITED BY

J. G. LIPMAN, B.Sc., A.M., Ph.D., D.Sc.

**DEAN OF AGRICULTURE, RUTGERS COLLEGE AND THE STATE UNIVERSITY
OF NEW JERSEY**

AGRICULTURAL MARKETING

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J. G. LIPMAN

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AGRICULTURAL MARKETING

BY

JOHN TRUMAN HORNER

Professor of Economics, Michigan State College

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PREFACE

During the past ten years, the subject of marketing has become one of importance in the courses of study of our universities and colleges, as well as to the general public. The great increase in the cost of living and the added expenses of getting farm products to the consumer have made this a popular subject. Improvements in the methods of handling goods have made it relatively easy to get produce from the more distant places of production. As a result of these improvements, it is no longer necessary to depend upon adjacent producing localities for our food supply; food now comes from all parts of the country, and every city is a possible market for the produce of the farms. This widening of markets has made marketing more complex and expensive.

With this change in the nature of markets, there has come a great interest in that phase of economics known as marketing. Everyone is seeking information concerning this process of getting the goods from the producer to the consumer. Inquiry is made into the processes necessary, the machinery of markets, price-making forces, and the reasons for the existing practices. Many of the unsound theories which have been advanced are being thrown into the discard as more real information is obtained.

There have been two outstanding methods of presenting the problem of marketing: one is an explanation of the different agencies or the market machine; the other, an explanation of the market services. No single treatise on marketing can possibly cover the entire field. For a clear understanding of marketing, it is necessary that one know of both the functions and the machinery. The whole market problem is so complex that a thorough discussion of it would lead one into almost all phases of economic and social life.

This book is an attempt to shed some light upon the problem in which so many of us are interested. It is not a

complete discussion of the subject, but rather, it is hoped, a contribution which will aid the student and the general reader to secure a better understanding of the economics of marketing. The successful teacher has learned that no single book is adequate for the proper teaching of the subject. It is hoped that this book will aid those who teach in better presenting to their students the economics of marketing. Its use as a text can be supplemented by the reading of governmental publications, current magazines, trade papers, books on marketing, general economic texts, and by information gathered from the market places. The author expects to compile a book of readings from the wealth of material which is already in print, to be used in connection with this text.

In this book, no attempt has been made to explain the existing market machinery, to give statistics as to market costs, to make the treatment all-inclusive, or to deal with agricultural coöperation. Special emphasis has been placed upon the problems of demand, producing for the market, market wastes, and the economic bases of the marketing services.

The author wishes to acknowledge his indebtedness to all those who have made the results of their studies available in printed form, thereby aiding others in studying this subject. The contributions of the many have made possible the advancement which has taken place within the short space of a decade. A debt of gratitude is also acknowledged to those who directed attention to our problem during the latter part of the nineteenth century and made possible the rapid development of the past few years. Special acknowledgement is made of the wise counsel and inspiring teaching of Professors H. W. Moorhouse, Asher Hobson, David Friday, and Henry R. Seager, and to Dr. W. O. Hedrick for reading and criticizing the manuscript.

JOHN TRUMAN HORNER.

EAST LANSING, MICHIGAN,
March 4, 1925.

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AGRICULTURAL MARKETING

CHAPTER I

MARKETING

Its Scope and Place in Economics

Wants. — As man's knowledge increased, and as he began to move from one part of the earth to another, new desires developed. Education, knowledge of the customs and modes of living of other peoples, development of an appreciation of art, music, and literature, new living conditions, the complexity of modern life — especially city life — higher standards of living, and numerous other factors have tended to increase the number of man's wants. Things that were once luxuries for the chosen few are now necessities for the masses. This great multitude of wants demands satisfaction, and man must exert himself in order that satisfaction may result.

Production. — Some of man's most fundamental wants are satisfied by what has been termed "free goods." Free goods are those which exist in a quantity greater than sufficient to satisfy the demand for them, as wood, nuts, berries, or water, in a newly settled country. Most wants, however, demand for their satisfaction goods which do not exist in superabundance.

These goods are called "economic goods," for the reason that they enter into the channels of trade and are valuable in exchange.

The process by which economic goods are made available for the satisfaction of man's wants is called production. At one time in man's history — the self-sufficing period —

production consisted of wresting from Nature the things desired, or of fashioning raw materials provided by Nature into forms more desirable. Since these processes were performed, as a general rule, by the individual desiring the goods, there were no other processes of production. As society became more complex, processes of production were changed. Specialization developed because of the natural adaptability of certain localities or individuals for the production of certain kinds of goods. With this change came the production, by the individual, of more of certain kinds of goods than were needed by him for the satisfaction of particular wants, and a lack of goods for the satisfaction of other wants. The era of exchange then dawned. Production became localized, to a certain extent. The increase of wants made it desirable to get goods from other sections of the world, and in order that these goods might be available they had to be transported. Thus, another process of production — transportation — became necessary.

Nature produces seasonally, while most of man's wants are continuous. Except as man may go from place to place and keep pace with the changing seasons, he must hold goods over from the period when Nature provides to the season when she does not. This process of holding goods from one time to another is called storage. The process of storage has always been one of man's activities since he passed from the stage of the nomad and hand-to-mouth living. It was only when this service was turned over to the specialist that its existence as one of the processes of production was fully realized. As society became more complex and specialization more common, the necessity of the services of production, other than those of mere extraction and form-changing, became evident. Changes in the practices and structure of society are not readily grasped by man. The new specialists, who came into the world markets as a result of the changes in productive methods, were not considered as real producers. Persons who have

studied the problem in all its phases now realize that those who perform services essential in getting goods into the hands of the consumer at the time desired by him are just as essentially producers as those who extract or fashion materials.

Economic Utilities. — Goods, in order to satisfy wants, must have certain qualities; they must be in the right form and must be on hand at the right place at the time desired. These qualities are called “utilities.” Economists classify utilities in different ways. The orthodox classification is time, place, and form utility. A good is said to have form utility when it is in the form desired. For example, a board will not satisfy the desire for a chair until it is fashioned into the shape dictated by comfort and fashion. It must also be at the place desired; a chair in a warehouse will not satisfy the desire for a seat at the dining table. The good must also be on hand at the time desired; ice in December will not satisfy the demand for refrigeration of the July milk supply. In addition to these utilities, economists have offered others, such as elemental utility,¹ the utility which a thing possesses by virtue of the elements of which it is composed; composition utility, which is the result of the chemical composition of a material such as coal, which may be changed into gas and coke; and possession utility, which is created by the transfer of goods from the hands of one person who cannot or does not desire to utilize them to another who wants them. The utilities, then, which have been defined by economists, are elemental, form, composition, place, time, and possession. It makes very little difference just what classification is used, so long as a clear concept of the productive process is obtained.

Classification of Productive Processes. — Production is the creation of utilities. The activities or the processes of production may be classified as follows:

¹ Ely and Wicker, *Elementary Principles of Economics*, p. 83.

- I. Those which result in the creation of goods and the changing of their forms.
 - (a) The extraction of minerals, or the production of crops, livestock or timber.
 - (b) The manufacturing processes which change the form of raw materials.
- II. Those processes which do not affect the form or composition of goods.

The services of storage, transportation, and exchange, which create the utilities of time, place and possession.

This classification corresponds with the general concept of the terms "production" and "distribution." In order that terms may be used which do not conflict with those of the economists, it might be better to call these two divisions "physical production" and "market distribution."

From the above analysis it is to be noted that production includes most of the activities of man. Man is directing practically all of his activities toward getting goods in the proper form, at the proper place, and in the possession of the individual who can use them, at a time when they are desired. Marketing includes all that part of production which does not have to do with the creation of the form utilities.

Classifications such as those given above are necessarily somewhat arbitrary, but, no matter what kind of classification were given, some objections could be found against it. Students of marketing have long ago learned that a study of the market problem consists of something more than a consideration of the mere processes necessary to create the different utilities. Time utility is created by storage, place utility by transportation, and possession utility by selling. There are certain complementary services which must be performed in order that these utilities can be created. A

discussion of marketing would not be adequate unless it included those complementary services.

Marketing Services Classified. — In view of the adjunct services which must be performed, marketing consists of more than the mere processes of utility creation. Market services may be classed as follows:

I. Those which have to do with the creation of utilities.

- (a) Transportation.
- (b) Storage.
- (c) Selling.

II. Those which have to do with getting the product ready for the services listed under I.

- (a) Grading.
- (b) Packing.

III. Those which are not directly connected with the product.

- (a) Financing.
- (b) Risk-taking.

Other Considerations. — There are certain operations, other than those of the strict market processes, which should be considered in connection with the market problem, because they have such a direct bearing on the performance of the marketing services. Marketing is a part of production. Production is not complete until the product, in the form desired, has been brought to the place where it is finally wanted for consumption.

Strictly speaking, it is at times very difficult to draw the line between what is called "production" and what is termed "market distribution." These processes are closely allied and should be considered as continuous. What happens in one stage will have an effect on what happens in other stages. It is, then, well within reason to study every step in the entire productive process in the light of

its effect on the condition of the final good as delivered to the consumer.

Farm crops cannot be raised nor goods manufactured without regard to the demand for them. Is there a market which wants this or that product? Is it one the consumer is willing to pay for? Is the product made in the way the consumer wants it? What qualities are desired? What practices must be followed in order that these qualities may be created and preserved?

The time to begin a study of the marketing of a crop or the product of a mill is before the goods are actually produced. It is the height of folly to create goods and then seek a market for them. Goods should not be produced merely because the producer likes to make such goods. The productive effort of society should be directed according to consumptive desires. So it is essential that a treatise on marketing give consideration to a study of the market demand and the direction of the processes of production along the lines which will satisfy that demand in the most economical manner.

After effort has been expended in the production of the goods which are desired, and after these goods are ready for the market process, items other than the mere market processes must be considered. If quality and market demands during the productive process are worthy of attention, it is likewise important that they be considered throughout the market process. Therefore the student of marketing might well give attention to "Care" during the market process and the effect that lack of care has on quality, the return to the producer, and the total accumulation of economic goods. It is proposed in this treatise to give attention to the benefits of well-guided production, to the importance of care in handling products, and to the demand, as well as to the generally accepted market services.

The Market Agencies. — Marketing might be studied from two different viewpoints: first, as has been outlined

above, as a study of the different market services necessary and the economic principles underlying the performance of each; second, as a study of the market machinery, from the assembler of products through the wholesaler, broker, jobber, and retailer, to the consumer. Different market channels can be mapped out and comparisons made of the costs and services of each. Efforts are made to "shorten up" the market chain and bring the producer closer to the consumer.

As time goes on, we see a change in the type of the middleman. Great specialization has developed in some lines. There are wheat buyers, cattle buyers, butter and egg dealers, hat shops, shoe shops, and various other special shops. The old general store is passing out of existence in many localities. The clothing store is being broken up into a multitude of special shops. On the other hand, side by side with these special shops, we find a concentration of many different lines of merchandise in one business unit. The modern department store has become one of the greatest of present-day merchandising agencies. The modern drug store is becoming a place where almost everything but drugs is sold. The chain store is a new agency which has but recently entered the field of trade and brought with it many advantages and disadvantages from the standpoint of both the merchant and the consumer. We see evidence of integration in marketing in connection with many of the larger industries, such as packing and steel.

In making a study of the market processes, then, we find regular and irregular channels of distribution, currents and cross-currents. A chart of the channels of trade through which goods must pass to-day is a maze of lines, curves, and dots. Confusion as to the methods of industry exists and will continue to exist until a complete study has been made of the processes and economic services which must be performed. As time goes on there will continue to be, no doubt, other changes in the market machinery. How many

agencies there are in the market process is not the all-important problem. It is, however, of great importance whether these agencies perform their functions in an economical way. One of the great misconceptions which the public seems to have of the market process is that the costs vary in direct proportion to the number of agencies in the market



FIG. 1. — The roadside market provides a means of direct selling.

channel. If specialization in physical production is of value, it is reasonable to suppose that similar benefits might also result from specialization in the field of market distribution.

Reasons Why Certain Practices are Followed. —

The market agencies, we find, have come into existence because men saw opportunities to make money by performing certain services. These opportunities were presented to them because the farmer or manufacturer desired to be relieved of certain duties so that he could devote more of his time to the duties of physical production, so that

he could, in other words, take advantage of the savings of specialization. On the other hand, some market agencies have been brought into the field because there were certain services which the consumer demanded. There may be some exceptions, but in general we find that market practices are the result of the composite demands of society. If the services which the market agencies provide were not considered valuable by the consumer, they would cease to exist.

It is quite probable that there are many market services which a certain consumer does not want performed for him. He might prefer to do certain things for himself and save the cost. However, it is not the desire of each individual consumer which is to be satisfied but the "composite demand" of the community. The consumer must adjust his method of living to the conditions of the complex society in which he lives. There are some disadvantages, as well as advantages, in our modern society. Take, for example, a small town community in which the majority of the people desire to have their groceries delivered and credit extended until the end of the month. A consumer who would prefer the "cash and carry" system and the money savings which naturally result from it cannot have his wish met, for the reason that there are not enough consumers who desire the same thing. On the other hand, if most of the people of the community attached enough importance to the economies of this system, it would become the prevailing one in the community and the individual who wanted the delivery service and the charge account would be compelled to go without it or pay the extra expense of having it provided. The composite demand of the market is the result of the demand of the bulk of the individuals buying in that market, and it is this which is to be satisfied, and not the demand of the individual.

Probably there are some agencies which are an extra burden to society and an effort should be made so to regulate productive and market practices that their services will become unnecessary. If there are uneconomical steps in the market process, the causes for such should be determined and the remedy applied at the proper place. The entire market process must be studied diligently. Facts must be ascertained and substituted for misconceived theories arising out of prejudice, bias, or desire. Marketing is a part of production, and the whole problem resolves itself into that of securing economical

and well-adjusted production of those things which society demands.

Importance of Demand Analysis. — Since production of goods is carried on for the primary purpose of satisfying demands, one of the most important of the market problems is the analysis of demand. Proper correlation of production and demand is essential for a free flow of goods through the market. If goods which are not desired are offered for sale, the market will not be right; the goods brought to the market place must be of use to those to whom they are offered. In order that goods may continue to flow into the market, the return must be sufficient to pay for all the costs of getting them there. There are two main classes of costs: (1) the cost of physical production, and (2) the cost of marketing. Unless the price received for goods is sufficient to cover these costs, the goods will go off the market. Production and marketing are not being carried on as they should be unless the consumer will take what is offered at a price which will pay costs. When goods cannot be sold at a price sufficient to meet costs, it is because the costs of production are in excess of the value which the consumer places on the goods, because the goods offered are not of the type desired, or because the quantity offered is in excess of the demand. Production under any of these conditions is out of harmony with demand. Demand should be studied, and every effort made to bring into the market goods which will be just as the consumer wants them.

The successful manufacturer studies his market. He tries to sense the desires of the consumer and place goods before him which will bring forth a remunerative price. The farmer has failed in the past to study his market. There has been a great lack of any attempt to correlate production and demand. Too much attention has been paid to the number of middlemen and their profits and too little to the demands of the consumer. No lasting improve-

ment of market conditions will result until an adequate market analysis has been made and forces put into motion which will direct production in such a manner that this consumptive demand is met.

Importance of Well-directed Production. — There are, no doubt, many weaknesses in the market system of our day, but there is none which is more significant than that of the correlation of demand and production. The consumer is the one who pays the bill, and if he is expected to continue paying it, he must be provided with the things he desires. It is a waste of economic effort for anyone to continue producing things without first having made a study of the kind, quality, and quantity of goods demanded. If the price received is not sufficient to pay the expenses of production of a good, farmers or manufacturers will turn their attention to other lines because of their losses. This is an expensive method to follow in guiding production. The more economical and sensible way is to study market demands and try to direct production along those channels so that demands can be met. It will be impossible to gauge demand absolutely so that production will always be in harmony with it, but production guided by facts gathered from a scientific study of demand will come more nearly into harmony than production which is left to chance.

We must look forward to harmony in the production of the things we need. Goods of the desired quality and in the right quantities must be brought into the market. If production is in harmony with demand, goods will flow to market in the right quantities, thereby eliminating a portion of our market ills.

Difficult to Harmonize Demand and Production. — There are, of course, great difficulties in determining what demand is going to be. Determination will be a task of no small magnitude in the case of demand which is influenced by weather conditions or fashions. On the other hand, the demand for such products as potatoes, wheat, and other

staples is not so difficult to determine. There are difficulties on the side of production which are hard to overcome. The manufacturer can definitely gauge ahead just what quantity of finished goods is going to result from a given quantity of raw materials and labor. Agricultural production is so dependent on factors over which man has no control that it is impossible to regulate the quantity of production except within wide margins.

A great part of the effort of selling is directed toward this problem of bringing demand and supply into harmony. The effort is made to bring demand up to the potential supply. In many instances this is a very expensive process. In those industries where supply is not regulated in some manner, there is the risk of its being more than sufficient to satisfy demand at prices which are remunerative to the producers. This necessarily involves risk and causes the expenses of selling to be higher than they would otherwise be.

It is important that the producer should be able to control not only the quantity of production but also the *kind and quality of goods* to be produced. Instead of devoting so much time to a consideration of those factors of market improvement which are popular, and to criticism which is not founded on facts, we should give more attention to the factors of improvement, which mean so much more. The saving that would be effected by the elimination of the retailer would not be as great as that which would result if better methods of storage of certain products were practiced, or if price fluctuations were decreased through a more regular flow of goods to market. Reduction of costs is important; and if there are some individuals in the market channel who are exacting too much, it is important that this condition be remedied, if possible. This is a matter of the distribution of wealth between individuals. Can we say that it is of less importance to guide production in the right channels and save products which have been

produced? Is not the most fundamental problem of our economic activity that of directing our efforts along those lines which will give the greatest returns in the shape of economic goods? The problem of a proper distribution of this wealth to the various classes of society is one of paramount importance, but the importance of this does not diminish the magnitude of that of economical production.

Improvements in Marketing. — A great deal has been done to improve market conditions within the past ten years. The Federal Government has, through the Department of Agriculture, made a study of the problem of agricultural produce markets. This work has been conducted on a research and educational basis. States and municipalities have their departments of markets. Farm and business organizations have been making investigations and taking action of various kinds in an endeavor to improve the condition of the farmer and reduce the cost of living. The activities of consumers have generally had to do with food products. The problem of expensive food is paramount in the mind of the consumer for the reason that food is such an important item in the budget. The general public has been interested also in the prices of transportation, telephone, electric, gas, and water service. This has not been due to the high prices which have prevailed, as much as to the monopolistic nature of such services. Very little concerted action has been taken in connection with the marketing of clothing, books, drugs, automobiles, jewelry, radio equipment, or the prices of theatre and prize-fight tickets.

Following the Civil War, came a number of farmers' movements which were primarily a protest against the economic, social, and political conditions under which farmers were living. In reviewing the activities of the resulting organizations, we note many mistakes and much unsound thinking. However, these organizations have

been of value to American society, for they have stimulated thought and led to the acquisition of much information. The more farmers have studied their problems and become acquainted with the processes of marketing and the functions of middlemen, the more they have come to a realization of their importance. It is through contact with actual market conditions and a real study of the reasons for market evils that improvement comes.

A very hopeful sign at present is that those who are working to improve conditions in the agricultural produce market are devoting the greater portion of their time and energy to such problems as grades, packing, storage facilities and methods, demand studies, productive methods to improve quality, and waste reduction. Farmers and consumers are beginning to realize that the market problem is very complex and can not be solved by merely "eliminating the middleman," even if such a thing were possible.

CHAPTER II

STANDARDIZATION OF PRODUCTION

The successful manufacturer devotes his time to the production of one of two classes of products: First, the one for which he knows a demand already exists. In this case he makes every endeavor to satisfy that demand as he finds it. He must make an extensive study of the wants, desires, and whims of his possible customers in order to determine properly what the real demand is. Upon how well he makes an analysis of his market his success depends. He may make, in the second place, those products which are new on the market and for which demand has not been developed. There is no apparent demand for this class of goods because the public is not aware of its existence. It is necessary for the manufacturer to create this demand. If he has a product which will take the place of some other at a lower price, or do the job better, or do something which no other product ever did, then — provided the product is properly placed before a trade which can afford to buy it — a market will be created. It would, indeed, be a foolish individual who would insist on manufacturing a commodity for which there was no demand or for which none could be created. In fact, he could not continue to do so very long; he would become bankrupt. It is one of the axioms of business that success is founded on the satisfaction of the demands of the people. Sell or make the things people need, or want, and make them in the form in which the people want them. The consumer is the final judge in the matter of what things shall be made and how they shall be made. The successful producer of goods always caters to the whims of the trade, and places on the market the

things wanted instead of the things which he, the manufacturer, likes to make. Real success in business is certainly founded on the ability to sense the demand, either actual or potential, and to satisfy that demand most economically.

The farmer, in the past, and to a great extent at the present time, has not studied his market. He does not know, and until recently has not given evidence of any great desire to learn, what the market demands. Production on the farm has been guided, not by the impelling force of demand, but rather by the desires or wishes, created by custom, of the individual farmer himself. It is true that the prices of farm products determine to a certain extent the quantity and kind of farm products which will be planted. But it is also true that to too many farmers cotton is cotton, corn is corn, a hog is a hog, and a watermelon is a watermelon. No distinction is made as to the qualities of the different varieties of corn, cotton, or watermelons. Too often the farmer grows one variety of watermelon because he likes it. He does not study the demand of the market nor determine whether this variety is the one which the consumer — the man who makes it possible for the farmer to continue raising watermelons — wants. In short, there is not the proper study of the demand for farm products nor concerted action for the satisfaction of that demand on the part of those who grow the product.

The farm, while considered by some as the place where man is really "independent," is as much, if not more closely, allied with industry than any other producing unit. The farm is a factory where goods are partially or wholly produced to meet the demands of the world. It is a factory which is merely one unit of a chain of about six and one-half millions in the United States. Nearly all of these units are working to produce goods to go into the same market at the same time and on the same basis. The manufacturer of knives brands his goods and is thereby

enabled to enter the market with a distinct product — the XYZ knife. This knife is distinctive; it is not like all other knives; there is some individuality about it. The farmer's product, in most instances, is incapable of being branded and going into the market as a distinct good. The farmer, in other words, has his product put into the market stream with all others. He sends the good with the bad; this variety with that variety; this size with that size. To remedy this evil, grading and packing have been introduced in connection with the marketing of some products, but because of haphazard methods of production the task of grading and sorting is a tremendous one.

It is true that Nature does not produce all peaches alike in the same precise way that the machine turns out each and every roller bearing exactly like the preceding one. There must be some grading and classing. The farmer can assist Nature in growing more nearly uniform products by the standardization of varieties.

The reason why more attention has not been given to the production of better products by the farmer is that many of the agencies which have been aiding him in connection with his problems have not seen the important connection which exists between market and production problems. Too often have they thought that the real problem was to produce a large crop and that the market problem would in some way take care of itself. Also, the farmer lives under isolated conditions. He is not in close contact with his neighbors, and before the days of the automobile and telephone lived much more to himself than he does to-day. There was no action in concert among farmers; therefore, it is quite natural that there should not be unity of policy in the production of crops. The necessity for concerted action in the standardization of varieties is being recognized. With such standardization will come the elimination of many of the costs as well as the evils of the market process, for it will make unnecessary some of the things which must

now be done. It is the purpose of this chapter to study some of the benefits which can be secured through the standardization of agricultural production and to bring out the importance of these benefits in their relations to the marketing process. Standardization in this sense is taken to mean the production of one, or a few, varieties of crops or breeds of stock in each community.

Livestock. — Standardization on a certain breed of livestock brings to the community certain distinct advantages:

1. *A Better Market Price.* The car-lot of uniform cattle tops the market. The packer can better estimate the "run" of a uniform car-lot than that of a mixed load. "For instance, it is well known that a mixed load of livestock containing a different number of grades does not sell as well as a uniform load."¹

The best way to secure uniformity is through the raising of one breed. The large breeder of livestock long ago learned the importance of handling one breed, or at least of keeping the breeds separate. He knows from experience the advantage of having a uniform product to put on the market. He does not have the handicap of non-uniform breeds and grades. Furthermore, he has a sufficient quantity of livestock to make car-lot shipments to the central market. This type of breeder does not have the market difficulties which are encountered by the man who has only a small number to sell.

In order that the small breeder may gain the benefits of marketing coöperatively with his neighbors and secure the advantages of volume, it is necessary that he raise the same kind and quality of livestock. Under such conditions there may be taken to the market a shipment which will be attractive. In the production of livestock it is not always easy to get uniformity, even under the same conditions.

¹ Armour and Company, *Handbook of Agriculture*, 1921, p. 27.

It is more difficult for a community to secure uniform production than it is for an individual, because of the difference in feeding methods, care, and attention given. To approximate uniformity, then, it is more essential for the small breeders of the community to standardize on one breed and eliminate the scrub, than it is for the large breeder.



FIG. 2. — Uniform lots of livestock sell better than mixed lots. (Courtesy Swift and Company.)

“Community breeding where farmers keep the same breed is advisable. Shipments to markets are more uniform. Better prices are paid for uniform lots. The right kind of bulls are always available. Car-lots of uniformly good beef cattle bring high prices.”²

2. *Exchange of Valuable Sires.* The purebred and prepotent sire is one of the most important factors in the livestock business. These animals are expensive and it is

² Armour and Company, Circular No. 5, “Beef Cattle.”

necessary to secure new ones as the herd increases and new breeding stock grows up. If there are not other breeders close at hand producing the same breed, it will be necessary to go to other communities for the new sires. This is more expensive than obtaining them nearer home. Also, the strain and real worth of local animals are better understood than are those of animals purchased elsewhere. Sires may also be transferred from one herd to another, thus assuring economy in the disposing of animals no longer needed in any particular herd.

3. *Coöperative Sales of Breeding Stock.* One of the important causes of high costs in any business is that the volume of business is not sufficient to keep the unit cost low. The breeder of good livestock usually has a number of animals which he desires to sell for breeding purposes because they will fetch a better price than if sold for slaughter. Unless he operates on a large scale, he will not have a sufficient number of animals to attract buyers from a distance. If the community has standardized on a certain breed, all the breeders can hold a coöperative sale at which the number of animals offered will be sufficiently large to attract many buyers. The expense of such sales can be borne by the several sellers. This should reduce the unit cost of selling.

4. *Advertising Value.* Coöperative sales have a distinct advertising value. The community which has standardized on any breed may by proper advertising gain a country-wide reputation. This will attract buyers. It will redound to the benefit of each breeder and of the community as a whole.

5. *Improvement of the Breed.* The improvement of the breed can be best accomplished by community action. The experience of one breeder can be shared with others. Specialists brought into the community by a group of breeders may be able to help all of them. During recent years the market demand for meat has changed. The consumer desires different kinds of cuts — smaller ones —

and less fat. This consumer demand has reacted to influence the packer and through him the livestock producer. Such changes can best be met by community thought and action.

6. *Community Pride.* The permanency of agriculture in America depends to a considerable extent upon the building up of a pride in the business. Pride in the occupation is found to the greatest extent in those communities where the best things are being done, that is, in communities where something more than raising crops and animals is carried on. The improving of the resources of an industry is an item of advancement. The farmer feels the importance of such things as much as does any other class of citizen. The farmer who is improving the quality of livestock or of crops grown feels the pride of accomplishment. The community that acts as a unit in the improvement of agriculture is easily distinguished from others. A community of this sort is most often known for the "best Holsteins, Durocs, Jerseys, and Leghorns in the state." When a community takes pride in its work, there is more enthusiasm in the effort. There is rivalry in the effort to excel, and as a result there is accomplishment.

7. *Uniform Products from Uniform Livestock.* The best example of such benefits is found in the poultry industry. Different markets demand different kinds of eggs, but all markets demand uniform eggs. In order to meet this demand it is necessary to have chickens that yield uniform eggs. If the eggs which go to the local buyer are uniform in size and color, the problem of grading will be a relatively simple one. Conditions are thus made favorable for a reduction in the costs of one of the necessary services of the market process.

Cotton.—The advantages of uniform production of cotton are well known to all who have studied the marketing of this product. Concerning the value of standardization of the production of cotton, the American Cotton Association's Committee on Coöperative Marketing says: "Aside

from the direct activities of marketing organizations, there are activities having an important bearing upon the marketing of cotton which coöperative organizations could well foster and encourage. The importance, from a marketing standpoint, of uniformity of quality in any product is fully recognized, and one very important feature of coöperative action in relation to cotton marketing should be the development of uniformity with respect to variety and quality of the cotton produced. The growers in each section or community should standardize upon the varieties best suited to its soil and climatic conditions and requirements of the mills.”³

This committee clearly recognized the necessity of the farmer’s producing for the market, that is, producing the things which will meet market demands, instead of thinking only of quantity production.

The advantages of standardized production of cotton, aside from those of community pride and advertising value, are as follows:

1. *Seed Kept Pure.* Pure seed may be bought by the farmer in order to improve the quality of cotton grown. Plant breeders may devote years to the improvement of varieties of cotton and the development of a strain which has the qualities demanded by the market. It takes time to develop a variety, and vigilance to keep it pure. The custom cotton gin is the place where cotton-seed of one variety is mixed with that of another, and, even though they may both be pure, a mixture occurs and the crop from such seed will be a hybrid.

“ The admixture of cotton-seed is largely responsible for the rapid deterioration of cotton varieties which is so apparent throughout the cotton belt, and which to a large extent, is directly traceable to the planting of seed which has been mixed at the custom gin. When plants of different

³ American Cotton Association. Report of Committee on Coöperative Marketing. 1920. P. 24.

varieties of cotton grow in close proximity, cross-fertilization takes place through the aid of insects and other pollen-bearing agencies, with the result that varieties become interbred and deterioration follows. Hitherto nothing has been published which fully emphasizes the extent of the mixing which occurs during the ginning process, and consequently the seriousness of the evil is not generally appreciated."⁴

Elsewhere we are told that: "It is apparent from the discussion of the present mechanical construction of gins that it is almost impossible to maintain the purity of each grower's seed on account of the added expense of the ginner in bringing about such conditions as will insure the accurate separation of seed that is to be used for planting purposes from seed of other varieties of cotton."⁵

If the quality of the product is to be improved, a good variety must be planted and that variety must be kept pure. Poor seed is one of the causes of a poor product. Cottonseed cannot be kept pure when different varieties are put through the same gin. A study of the extent of mixing of seed through the gin was made by Government representatives at Greenville, Texas, in 1914. The results obtained from this study "show that the mixing occurs to a far greater extent than is commonly supposed, and emphasize the necessity of materially modifying common ginning methods if supplies of pure seed are to be maintained."⁶

In making this study the investigators proceeded as follows:

"The seed roll was removed from a 70-saw gin and the seeds were stained red with ordinary dye in order to mark them distinctively. Then they were thoroughly sun-dried and finally returned to the roll box. The roll was packed as near as possible to the density it had before being removed. When the next bale was ginned, samples of the seed were taken every five minutes from the gin containing the colored

⁴ U. S. D. A. Bulletin No. 288, p. 1.

⁵ Farmers' Bulletin No. 764, p. 26.

⁶ U. S. D. A. Bulletin No. 288, p. 1.

rolls as the seed dropped in to the conveyor. The proportion of red seeds in each sample was then determined. The results of these determinations are given in Table I.”⁷

TABLE I

Extent of mixture in samples of cotton-seed taken from the roll of a single gin stand in a battery of three stands at intervals of 5 minutes, as determined at Greenville, Texas, September 7th, 1914.

Time of sampling after ginning had begun	Number and character of seeds in each sample			Red seeds
	Total	White	Red	Per Cent
5 minutes.....	521	250	271	52.0
10 minutes.....	478	396	82	17.1
15 minutes.....	527	488	39	7.4
20 minutes.....	835	812	23	2.8
25 minutes.....	603	600	3	.5
30 minutes.....	801	800	1	.1

Such difficulties could be eliminated if communities standardized on a certain variety. Cross-pollenization would not occur, nor would the seed be mixed at the gin. Where it is impossible to get standardization on one variety in the entire trade territory of a ginning point, matters could be so arranged that one gin could handle all the cotton of one variety and another that of other varieties.

2. *Ginning Expense Reduced.* If cotton of a uniform length of staple came to a gin, there would be less setting of the gin saws to accomodate the different lengths of staple and therefore a greater run during the day. This increased ginning output would tend toward a decreased cost.

3. *Variety Improved Through Breeding Experience.* With a standard variety adopted by the community, it would pay to establish experimental breeding plots for the sake of further improving the quality of the cotton. This undertaking, which would be impossible for the individual cotton grower, could be conducted by the community. These breeding experiments could be carried on in coöpera-

⁷ U. S. D. A. Bulletin No. 288, p. 3.

tion with the Agricultural Experiment stations and would have the added virtue of being more practicable in that they could be located where the variety was to be grown commercially. Also, it is quite essential that as much of the improvement work as possible should be conducted by the farmers, or the farm communities themselves. The sooner the farmer's problems can be attacked by himself, the sooner will lasting improvement come.

4. *Lint and Texture Kept Uniform.* The main product of the cotton plant is the lint. Varieties are selected with a view toward the securing of a better quality of lint. The market demands dictate the qualities which are desirable. Pure varieties make for better lint because they yield more nearly uniformly.

"The producers in each community are urged to grow a single variety of good-quality cotton and to exercise care in picking and handling so that they may bring to market a high-grade cotton."⁸

5. *Better Prices to the Farmer.* Many farmers have been discouraged in their attempt to grow the better varieties of cotton and to improve the quality. They make the assertion that they can get no greater price for the best quality than their neighbors get for the inferior quality. This charge is true in most of the markets as they exist at the present time.

"United Action Necessary. Individuals in districts held to be inferior cotton districts have repeatedly produced superior cotton and thus have demonstrated the possibility of the districts for growing better cotton. However, since their market price is based on the character of the bulk of the local crop, they are often discouraged, through failure to receive the price which their product justifies, from continuing their efforts for the growth of superior cotton, and so revert to the growth of inferior varieties of the community.

"It is evident from every viewpoint that uniformity of

⁸ Farmers' Bulletin No. 775, p. 7.

production cannot be maintained except through the united action of all growers of a given community.”⁹

This condition exists because there is no local market for the superior cotton. The quantity is not sufficient to make it profitable for the local buyer to handle it separately from the other cotton which comes to the market. In order to get the advantages of superior quality it is necessary that there be sufficient of it to make the handling of it profitable.

“ To establish a reputation of a section for superior cotton there must be annually a dependable quantity of such cotton available in the markets of that section. The greater the quantity of superior cotton produced in any community, the more attractive do its markets become to buyers, with the result that producers receive better prices for their products.”¹⁰

Uniform and good-quality cotton in sufficient quantity makes a market possible. The standardization of production will make the production of such cotton possible and revert to the profit of all of the producers in the community. Proximity to market is one of the factors which adds to price; yet in some instances the farmers favorably situated do not take advantage of this factor by producing the product desired by that market. For example:

“ The producers of North Carolina are not securing the advantage that proximity to the mills should give, through failure to produce the lengths of staple required by them. Care in selecting varieties for planting tends to improve this situation.”¹¹

In order to offset the disadvantage at which the farmer finds himself in the marketing of products in small quantity,

⁹ Report of the American Association's Committee on Coöperative Marketing, p. 27.

¹⁰ Report of the American Cotton Association's Committee of Coöperative Marketing, p. 25.

¹¹ U. S. D. A. Bulletin No. 476, p. 17.

it is necessary that he join with other farmers of his community and try to place production on a community rather than on an individual basis. In this way, the produce which enters into the market channel from the various small production units can be gathered together and obtain the advantages of large quantity marketing.

“Organizing on a community basis will permit the development and maintenance of a pure variety of cotton of a given length of staple. This development of one variety must be accompanied by better methods of harvesting, ginning, and storing. When the cotton is ready for marketing, better prices can be secured by assembling it at a central point, having it properly classed, and offering it for sale in even-running lots of grade and staple.”¹²

Grading and classing of cotton are made necessary because it is not of uniform quality, length, staple, and texture. If there were standardization of production, there would not be such a lack of uniformity as there is at present, and the expense of classing and grading would not be so great. Another benefit that might arise from the production of uniform quality in a large quantity is that expenses of selling might be decreased by attracting buyers direct from the mills. If the mill buyer could secure the amount and quality of cotton he desired from the producers (whether individually or coöperatively), he might be attracted to such a market. However, under the present conditions, where the local market offers many grades of cotton, and each grade in small quantity, it is impossible for the mill buyer even to consider coming to such a market.

Other Products. — The advantages of standardization of varieties exist in the case of fruits, corn, wheat, and other farm produce. It is possible that there will be found special advantages for each product not included in the preceding discussion. The corresponding advantages in the case of potatoes are quite marked. The Michigan Potato

¹² U. S. D. A. Bulletin No. 457, p. 13.

Growers' Exchange has standardized on the production of the Russet Rural variety. About 95 per cent of the potatoes sold through their exchange are of this variety. Concerning this question, the United States Department of Agriculture reports:

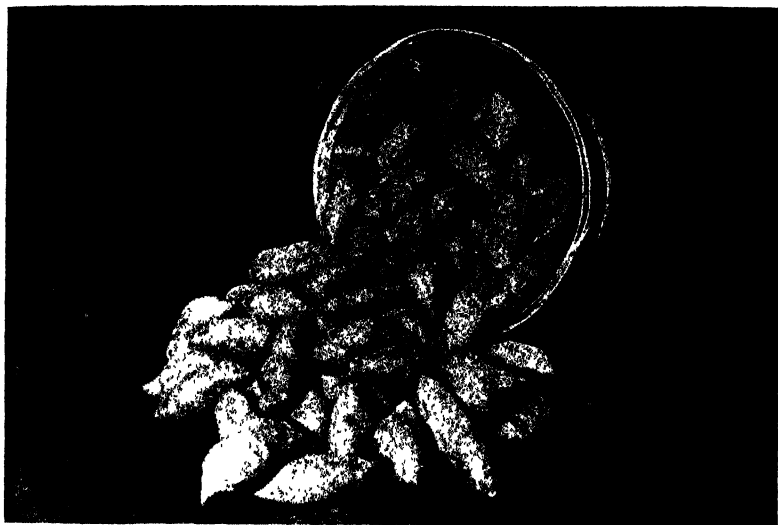
"The impression prevails that the greatest problem facing the fruit and vegetable growers' industry is that of marketing, and the standardization of these products is acknowledged to be one of the most important phases of that problem. Only a start has been made in this country looking toward the standardization of agricultural products. Standards for fruits and vegetables are difficult to establish because of their perishable nature, the wide difference in varieties, and the varying conditions under which they are grown. Standardization is generally taken to mean the establishment of suitable standards of quality which will include such regulations concerning the digging, handling, sorting, sizing, and packing as will insure a uniform, standard product of high quality. It should be extended to include the shipping containers used.

"It is equally important, however, that standardization be applied to the production of this crop. An effort is being made in many states to standardize the varieties grown. This movement aims to confine the planting in each section to a very few varieties which have proven best for that locality. An endeavor is then made to plant only seed true to name and of the best selection. The result of such methods is to standardize these few varieties of pure strains and eventually make the section widely known as producing certain varieties to a high degree of perfection and in large quantities."¹³

"Crop varietal tests held in a large number of communities show that a great number of crop varieties of varying quality and yielding ability are being grown. If all farmers in any one neighborhood were to adopt the best varieties as their standards, increased yields would be secured and a more uniform and superior market grade produced."¹⁴

¹³ Farmers' Bulletin No. 753, p. 18.

¹⁴ Michigan Agricultural College Experiment Station Special Bulletin No. 109, p. 3.



There is less risk of deterioration if produce is well-graded and packed before shipment. *Courtesy U. S. D. A.*



Standardization of production gives uniformity which makes loading and sale easier. *Courtesy Bureau of Agric. Econ., U. S. D. A.*

To sum it up, standardization of production on the farm has a direct influence on the market price received for the produce. This is a problem of production; yet it is one so vitally connected with the market process that thorough market discussion cannot result unless it is taken into consideration. It is, too, one of the most important of the questions which confront the market student, for it is essential that the product offered be one that the market desires. The better the product fills a market demand, the better will be the price received. As mentioned in the early part of the chapter, the manufacturer produces for the market. He studies the market needs. If the farmer is to be successful in his marketing, he must also look toward the market. The American farmer might well take for his slogan, "One eye on the furrow and the other on the market"; or, as a prominent market specialist has said, "One hand on the plow and both eyes on the market."

CHAPTER III

PREPARATION FOR MARKET

I. Grading

A grade is a unit of quality and is said to be standardized when it is generally known and accepted by the trade, or buyers and sellers. Grading is the process of sorting produce into lots of uniform quality.

In order that a grade may be of value, it must become known to the trade as an indication of a certain fixed and never-changing quality. A grade which varies from time to time is of no value and does not serve the purpose for which it was intended. The first requirement of a grade is that it be honestly made and continue to be the same from day to day. Confidence is necessary if grades are to serve their purpose.

Grades Based upon Demand. — As a general rule, grades are based upon the demands of the consumer, or, in case of a product which is to be processed, upon the demands of the manufacturer. For example, wheat grades are based to a very large extent upon the demands made by millers. Wheat differs in milling qualities; that wheat which has the best milling qualities is most desired by millers and is bought by them in preference to other wheat. Wheat grades are based upon milling requirements. Of course, back of the demand of the miller for a certain kind of wheat is the demand of the baker for flour which will make a certain kind of loaf, and this in turn is prompted by the desire of the bread eater. Every trade activity is made in an endeavor to satisfy some demand of the consumer. Thought is given to the thing which will cause the product to be demanded.

The desires of the consumer are the impelling force in industry, and on all sides we find efforts being made to satisfy these desires. The consumer's demand, then, may be said to be the basis of grades, even though the consumer is not aware of that fact and may be entirely ignorant of the existence of grades.

Why Grading Is Necessary. — In manufacturing industries the product flows from the machine with those qualities which the manager desires, for men can control the action of machinery with precision. The result is uniformity. Man's control over Nature is not so great. In fact, man has great difficulty in causing the forces of Nature to yield the exact thing that he wants. The product of one thousand similar machines will be the same from day to day and from year to year. In agriculture, on the other hand, the product from several plants or trees will not have the uniformity desired. The fruit from one tree will be of many sizes, shapes, and qualities. While the tendency will be toward uniformity, there will not be that precise uniformity desired by the consumer.

Man and machinery produce uniformly, while man and Nature produce in varying degrees of quality. This is true because man has not yet learned to make Nature do his bidding, and it is very probable that he will never be able to accomplish this. Man's advancement has been due largely to the fact that he has been able to adjust himself to Nature rather than control her. In the chapter on Standardization of Production it was shown that man can cause the product to be more uniform by giving proper attention to varieties grown. However, Nature does not yield a uniform product and therefore it is necessary that man make this product uniform before it goes to the market, primarily because the consumer desires uniformity.

Concerning the importance of grades and proper preparation for market, the United States Department of Agriculture has said the following:

Experienced produce merchants will agree with the statement that any fruit or vegetable of desirable variety, well grown, carefully harvested, properly graded, packed and shipped, is more than half sold. On the contrary, products poorly grown or carelessly prepared for market are always disposed of under a decided handicap.

The appearance of an article of fruit or produce is the first point noticed by the consumer, the retailer or the wholesaler. If the product is exhibited in dirty or damaged packages; if it is slack-packed, decayed or not graded for size of quality, the best "Trade" will pass it by for other shipments of better appearance. If upon further inspection the eating or keeping qualities are found to be lacking, the article is sure to be rejected by the discriminating buyer.

Years of observation on the part of those closely connected with the business warrant the statement that markets are rarely glutted with fruits or vegetables of first-class quality and appearance. High-grade products will sell, and usually at a profit to the grower, even when ordinary or poor grades are going to waste. This situation is to be expected since it is natural for both dealers and consumers to want the best. On a normal market the higher grades may be out of reach of many on account of price, but when a market is glutted and quotations drop the "Trade" will become more and more discriminating. The well-graded and well-packed produce will be taken and the mediocre left or sold at a sacrifice. Wholesalers and retailers know that the higher the quality of their goods, the less chance of loss in deterioration, time and customers.¹

The Advantages of Grading. 1. *Gives Uniformity to the Product.* Grading sorts the commodity into uniform classes, and permits, or makes easier, the use of machines in manufacturing. Some machines are made to take certain sized products. Unless there is uniformity in the product which is fed into such a machine, the result is not satisfactory. In many instances of manufacture, it is desired to have a product which is uniform as to quality and size, so that the finished product will have an attractive appearance.

¹ Farmers' Bulletin No. 707, pp. 1-2.

Peaches, pears, pineapples, and other fruits are examples of this. Appearance is one of the most important factors of quality in such processed products. Good appearance cannot be secured unless there is uniformity as to size.

2. *Decreases Waste in Marketing.* It is impossible to make a reliable estimate of the quantity of produce which is thrown away during the market process, but the amount is truly enormous. It has been estimated that 25 per cent of the perishables arriving at wholesale markets are hauled to the dump-pile.² The writer is of the opinion, however, that this is an exaggeration and could not be substantiated if all the facts were gathered. During the year 1920, the New York City Board of Health condemned some twenty-four million pounds of food products as unfit for food. This is, however, a very small percentage of the entire food receipts of the city for that year. This, of course, makes up only a part of the losses, as a great amount is thrown away without being condemned.

Food products, especially perishables, move from the wholesale market rapidly and get away before much loss occurs. It is in the retail section of the market chain that the greatest loss probably occurs. It is impossible to make an estimate of this loss that would be of any value. Summing up the evidence, it is quite probable that the losses in the markets due to decay have been greatly exaggerated; however, this loss is quite enormous and causes a great burden upon the distributive system. The loss which occurs is not only the actual loss of the produce which is thrown away, but also the loss of the effort and expense in handling, packing and transporting that portion which is dumped. By proper grading and packing this loss will be reduced.

There is a constant complaint on the part of growers and farm papers that too great a difference exists between the retailer's selling price on potatoes and the price received by the

² Adams, A. B., "Marketing Perishable Farm Products," p. 25.

farmer. Without doubt, this is true. However, the retailer replies, on just as good ground, that if potatoes were so graded that they would reach him in proper condition to deliver to the consumer, as do most of the other products which he handles, he could sell on a smaller margin, for it would be unnecessary for him to stand the losses which now accrue from potatoes that must be culled out on account of their poor quality or condition, and from labor necessary to do this work.³

If, in grading at the country shipping point, all that portion of the produce is left out which is not capable of standing the strain of the market process, then there is an economic saving. As the practice of proper grading becomes more universal, physical and money losses will be reduced.

3. *Increases Value.* Grading increases the market value of produce.

“ Good fruit, uniformly well graded and sized and in sound condition, soon gains a reputation for soundness, quality and dependability that commands for it the highest market price throughout the season.”⁴

A uniform lot of produce is more pleasing to the eye, and will cause the consumer to pay a higher price for it, than one that is not uniform. Ultimately, it is the effect of such things on the consumer that is of significance. The well-graded and properly appearing product is the one the consumer prefers. It is quite true that he could probably “ make a better buy ” if he were not so particular as to appearance. In speaking of this matter, one man in the wholesale produce business in New York City once said that people “ eat with their eyes ” and are too particular about the appearance of things. This may be true, but on the other hand, the appearance of food products is an item which must be taken into consideration. A great part of the satisfaction we derive from food comes from the pleasing appearance

³ U. S. D. A., Office of the Secretary, Circular No. 48, p. 4.

⁴ Farmers' Bulletin No. 696, p. 17.

it has when set before us. It matters not whether this is a consideration to which consumers should give weight or not; the fact remains that the great majority of them do, and since it is a service which is not detrimental to them it should be provided. People will pay for appearances, and the wise provider will attempt to meet this demand.



FIG. 3. — Attractively graded and packed fruit sells best at the roadside market.

“To conduct the business in the proper way, and in order to secure the best results, a buyer, in whatever line of business he may be, wishes to secure the material that is going to produce the desired results. For this purpose he will see that the material that he buys meets his requirements in every detail. This is true of the cotton manufacturer. A cotton-mill man who has sold a specific number of yarn requires a definite grade and staple of cotton in order to make this product. The broker has a certain knowledge of the requirements necessary to make the different yarns. The treasurer or president of the mill knows what kind of cotton he needs. He requests his broker to make him an offer of a specified number of bales, shipment to be prompt or equal portions of it to be made at stated intervals. Everything being satisfactory, the sale is consummated, and it then rests with the broker to secure the required cotton.

If he can buy the cotton in even-running lots, the broker

offers it at a price which allows a small profit to himself. However, if he be compelled to buy the cotton unclassified, or in a "hog round" lot, of which perhaps 25 per cent may not be suitable for his needs, that amount of cotton has to be stored and disposed of in some other way. Therefore, he must buy his cotton at a price that will allow carrying charges and insure a profit sufficient to cover a possible loss. From this it will be seen that if cotton is sold in "hog round" lots the price secured will not be as good as when the cotton is sold on grade, each grade bringing its own price. When a lot of cotton is sold at an average price for the various grades composing it, the high or best grades do not yield a just return, and the farmer does not receive a fair value for his product. The farmer whose low grades are bought at the same price, however, receives too high a price, but it is at the expense of the farmer who is selling the high-grade cotton."⁵

4. *Reduces Risk.* The uniform lot of goods is the one which is desired by the buyer. The well-graded lot of goods does not yield a large proportion of "culls" which is a loss. It is not so much the fact that there is a certain amount which will be lost, as it is that in a non-graded lot of goods this loss cannot easily be calculated.

The amount of loss must be estimated by the buyer. This involves risk. Risks are expensive and someone must be compensated for assuming them. The presence of risks therefore results in a lower price. The buyer of a well-graded lot of goods can estimate the "yield" and can better calculate the return which he can secure. This causes risk to be reduced. For example, the buyer of a well-graded box of apples knows how many apples he can get out of the box; he knows the size of the apple and what he can sell it for. He can, therefore, determine before the purchase just what his return is going to be and can make a more intelligent price.

5. *Makes Sale by Sample or Grade Possible.* A great part of the trade of the world is now transacted without the

⁵ U. S. D. A. Bulletin, No. 311, pp. 10-11.

buyer and seller coming together and without the buyer seeing the actual goods. In many instances, the seller does not see the goods. This would not be possible unless buyer and seller could communicate with one another and transfer definite and understandable ideas concerning the goods. This is made possible by the existence of standard grades.



FIG. 4. — Fruit graded and packed in this manner will attract buyers.

If every bit of produce had to be physically inspected by the buyer before closing a deal, the expenses of marketing would be greatly increased. This inspection would take much time and would require the services of expert buyers, whereas anyone can buy a product if it is designated by grade. Such a designation will permit the making of a price. If each lot of goods had to be inspected, the buyer would need to have the ability to inspect the goods and properly value them. Ability of this kind is expensive. Also, the inconvenience of storing goods where inspection could take place would be no small item.

What is more important, however, is the fact that markets would necessarily be limited in area because of the necessity of physical inspection. The limitation of the market area would cause prices to be less uniform and less stable. World markets would then be practically impossible. As an illustration of the result of grading, it may be

mentioned that products which are best graded now enjoy the widest markets. Wheat is sold by grade. Thousands of bushels can be sold by *A* in Chicago to *B* in London in a few moments' time. Each party to the transaction will know definitely what is sold. No misunderstanding need arise since the grade by which wheat is described is a unit of quality which is almost as definite as is the unit of weight, the pound, or the unit of length, the yard. Some products are not graded to as fine a degree as others. One hundred bales of cotton in a warehouse in Chickasha, Oklahoma, can be sold by a broker in New Orleans to a textile manufacturer in Fall River, Mass., without either the buyer or seller actually seeing the cotton. This will be an intelligible transaction because each party concerned will understand exactly what is being sold. Grading and the general acceptance and knowledge of grades have been factors which have permitted the transaction of business in volumes and under conditions conducive to low costs.

6. *Makes the Establishment of a Market Price Possible.* If it were not for grades, the price would have to be made for each sale. Every sale would thus be a matter of individual bargaining. It would be impossible to convey any idea of how much wheat was worth unless an idea of the quality of the wheat could also be conveyed. The only way to do this is by the use of a unit of quality, a grade. Without grades, significant price quotations would be impossible, and unless quotations could be used, world markets could not be developed. It is impossible to conceive of the transaction of business to-day without the use of price quotations. Such a handicap would slow up the wheels of commerce and turn back the hands of the business clock several generations. Price quotations, which are essential to the efficiency of present-day business, are impossible without well-defined and generally known and accepted grades.

7. *Makes Future Trading Possible.* Without a description that conveys the same concept of a product to both

buyer and seller, it would be impossible to make a deal unless the goods themselves were at hand and inspected. If it were necessary to examine produce before transacting a sale, it would be impossible to carry on future trading. In order to buy goods to be delivered at some future date, it is necessary to have some means of stating clearly what is being bought. For products which are capable of being graded, the grade is the means of making such a statement. Future trading is found only in those products which are capable of being graded, and it was not until there was a development of grades that this form of trading became important.

The question as to whether future trading is desirable need not be discussed here. It is enough to state that without grading, future trading would be impossible.

8. *Makes Long-time Contracts Possible.* Closely connected with the foregoing point is the one which has to do with long-time contracts. Contracts for the continued delivery of goods are of the type here referred to. For example, since grading has been common, it has been possible for a miller to buy wheat for delivery at certain intervals during the year. The milk distributor can safely contract for milk over a long period of time. Numerous examples might be given to show how grades permit long-time contracts to be made and how they result in stability to business and reduction of risks. Risk reduction tends toward a more stable marketing system and lower costs.

9. *Makes Storage on a Large Scale Possible.* If it were not for well-defined grades of wheat, the large storage elevators would not transact the type of business which they do to-day. They would either have to buy wheat outright or make arrangements to store each lot of wheat separately, somewhat in the manner that the warehouseman stores household goods. Obviously, this would be impracticable where large volumes of goods are handled. Since grades are well-defined and the quality of wheat put into storage

can be determined, it is not significant to the one who stores his wheat whether or not he gets back the identical wheat he left there. It is sufficient that he gets back wheat of the same value or quality. Grades make this possible. They permit handling of grain in large quantities and in a manner which would be impossible if each lot of grain had to be kept separate. It is impossible to estimate the advantages which such large-scale handling, made possible by grading, gives. In the course of time, the improvement in grades and their extension will lead to decreases in market costs.

10. *Places Financing on a Better Basis.* If a cotton dealer tells his banker that he has 50 bales of "middling cotton," rather than 50 bales of "cotton," he is in a better position to get credit accommodations. "Middling cotton" brings to the banker's mind a certain quality; he can visualize the goods. He can make an estimate of the value of the cotton which is offered for security. On the other hand, "cotton" might mean anything from the poorest quality to the best. It is not definite enough to permit definite action. There is risk involved in the acceptance of such security, and it is desirable that risk be reduced to a minimum. The same would be true in the case of wheat, corn, and other well-graded products. The grade permits intelligent action.

In addition to the advantage of financing, as noted above, grades also make possible the issuance of warehouse receipts. Such receipts, setting forth that a product of certain quantity and quality is stored in a warehouse, are valuable pieces of commercial paper. These receipts can be offered as collateral for loans. Making produce available as security for loans is a valuable aid in marketing. Without grades, this would not be possible to any great extent.

11. *Makes Sale by Auction More Efficient.* Probably it would not be an exaggeration to state that sale by auction is made possible by grades. Auctions selling products in a large city must handle large quantities. All produce on a

city market, especially perishable products, must move rapidly. Anything which tends to speed up this movement makes for lower cost. Things which cause a slowing up of the process add to the ultimate cost and also tend to increase the loss through deterioration. The auction has been shown to be a very efficient method of sale, especially when considered from the standpoint of rapid movement of the product. In the past few years, the number and quantity of food products sold by auction has increased. But for grades, the auction method of sale in the congested city market would not give the results which it now does. Concerning the importance of grades to the auction, L. D. H. Weld says:

“ But even perishable commodities arriving in large quantities are not adaptable to sale by auction unless they are carefully standardized as to grades and packages. Fruits offered for sale by auction companies cannot all be displayed and inspected. Sale is by sample; a few boxes of each lot are opened and made available for inspection by buyers before the auction sale begins. Unless packages are uniform in size, and unless the fruit is uniform in quality and size throughout each package, buyers will not risk making their purchases from samples. This accounts for the fact that boxed apples from the northwest are often sold at auction, whereas eastern barreled apples are not successfully sold in this way.”⁶

II. Packing

Some products do not require packing. The greater portion of agricultural products probably goes to market without being packaged. Such products as livestock and cereals do not require this service. There is a great mass of produce, however, which must be packaged in order that the marketing process may be carried on efficiently. As a general rule, bulky and non-perishable products are not packaged. Exceptions to this are cotton and hay.

The advantages of packages and the reasons for packing may be listed as follows:

⁶ Marketing of Farm Products, p. 129.

1. *Maintains the Grade.* Some products, after grading, would lose their grade unless they were put into some kind of package to keep the different grades separate. For example, if a car of potatoes was graded and not put in sacks or barrels, but all grades put into the car in bulk, a mixture would occur and the grade would be lost. This applies to various other products which are handled in small quantities. If the quantity were sufficient to permit the loading of an entire car with one grade, then the packaging would not be necessary for retaining the grade.

2. *Makes Handling Easier.* Some products are of such a nature that they can be handled to advantage by machinery in bulk. Such products are non-perishables, particularly the grains. This is due to the fact that the individual units are small and relatively heavy, permitting machine and gravity handling. Such handling of grain does not injure it in any way. Other products, though not injured by machine handling, must be packaged in some manner. For example, hay, which is non-perishable and not readily injured by rough handling, must be baled because of its great bulk. Cotton is another such product.

Most products not suitable for handling by machinery can be best dealt with when they are in packages. As a general rule, packages are of a size which permits easy handling and a saving in time.

3. *Prevents Injury to Produce.* Perishable products must be packaged in order that injury may not result while they are being transported and handled. Produce subject to bruising must be packaged in such a manner that damage will not occur. The package is essential to successful marketing from this standpoint alone. If it were not for packages, some products which are very perishable could not enter into the channels of the market at all, and their distribution would be limited to the immediate vicinity in which they are produced. For this reason it may be said that packages permit an extension of the market.

4. *Reduces Transportation Costs.* The packaged product, as a rule, takes up less room. Cotton not baled would be a very expensive product to transport, because of the enormous amount of space which would be required. The same is true of hay. Other products can be transported more cheaply in packages than in bulk, because cars can be better and more safely loaded with packaged goods. With-



FIG. 5. — Packages of convenient size permit quick handling without injury to the produce.

out packages, some produce would deteriorate so much under ordinary conditions of transportation as to make the cost of the latter prohibitive. If eggs could not be packaged it would be almost impossible to transport them. They would have to be produced close to the market, and even if the distance to market were short it would be almost impossible to transport them without some sort of package.

5. *Makes Storage Cheaper and Easier.* Anything which will permit the storing of more of a product in the same space and the handling of it in larger quantities leads to a saving. Packaging such products as cotton and hay causes the bulk to be reduced, thereby making less space necessary for storage. Packages also make the labor of placing the product

in the store-house and of taking it out less expensive. Fruits, eggs, butter, and many other products can be stored more cheaply in packages than in bulk. It is quite evident that such a product as butter could not be stored if it were not in containers.

6. *Reduces Waste.* The advantages of packages previously mentioned, such as preventing injury, reducing transportation costs, and making storage cheaper and easier, are closely connected with that of the reduction of waste. Because these things are better done, waste is reduced. Such waste as is due to deterioration and actual physical loss is an item of great importance in marketing, and every possible effort should be exerted to prevent such loss. Packages prevent waste. The package keeps the produce in better shape and prevents the physical loss of the goods as well as injury to the product. Waste is thereby reduced.

7. *Makes the Commodity More Attractive.* The product that is well graded, uniform in size and quality, and well packaged in a neat container is more attractive to the buyer than the one that is not packed. Packing, if properly done, will increase the return which the product will bring, because of the appeal that it makes to the eye of the consumer. From one viewpoint this is a disadvantage to the consumer. Too often one pays for the package instead of the product. However, all our expenditures are made for the purpose of giving us certain satisfactions. The pleasing and attractive appearance of the things we buy satisfies certain wants which we have. Evidence that this is true lies in the fact that people will pay for appearance if they can afford it. A very striking example of the difference in price resulting from the appearance of the product may be seen in the case of boxed apples. Bulk apples, or even barreled apples, of the same quality, will not bring as high a price, or be desired as much as boxed apples properly packed. If the box bears an attractive label and presents a neat appearance, the desirability of it is increased.

8. *Facilitates Selling.* Packages are made to contain quantities which render handling easy or quantities which are convenient for the consumer. Coffee is put up in pound packages. Cooking compounds, breakfast foods, syrups, tea, fruits, vegetables, and numerous other food products are packed in different-sized packages in order to meet the demands of custom in different localities. In cities, the smaller packages prevail because the housewife does not desire to have so much space taken up with large packages of food. Here, storage space is at a premium. Then too, the base of supply — the grocery — is, as a rule, only a few steps away. Under these conditions, buying in large quantities is not necessary. In the rural community, purchases are made in large quantities and the stores in such communities keep the larger-sized packages.

Packages are made in the proper size to meet the demands of the consumer, and since these packages hold the required amount, waiting on trade is greatly facilitated. A buyer wants a pound of coffee. The retail clerk reaches the ready-packaged goods in an instant and the transaction is completed. It is not necessary for the clerk to get a container, weigh up the desired amount, and wrap it up. Retail buying, as a general rule, is concentrated during a few hours of the day, the "rush hours" when many customers are kept waiting. Practices which enable clerks to wait on buyers quickly tend to increase efficiency and decrease cost. Packages assist in this manner.

9. *Keeps Goods Sanitary.* Goods packaged under sanitary conditions in a factory are more wholesome when they go to the consumer than those which are handled in bulk and weighed out and wrapped by the retailer. Many retail food stores are not kept in as sanitary a condition as might be desired. However, in the past few years great advances in sanitation have been made. Even under the best conditions, the sealed package is the most sanitary method of handling food products. This is especially true of milk.

10. *Makes Brands Possible.* Some products are of such a nature that they could not be branded without being packaged. This is true of most food products. Hardware, dry-goods, clothing, and many other articles of sufficient size and proper composition can be branded without being packaged. Most food products require a container, however, if



FIG. 6. — A branded product usually sells better.

they are to carry a brand. For example, it would be impossible to brand coffee, tea, oatmeal, breakfast cereals, soda, salt, most vegetables and fruits, and products of like nature, unless they were packaged. The package is a necessary adjunct to brands and performs a real service in this connection.

How does the Service of Grading and Packing Affect Price? — As has been shown, grading and packing have a tendency to increase the price which is received for the product. No market practice can be considered desirable if it is detrimental to the consumer. There may be instances of practices which do not injure or benefit the consumer in any way. Such practices cannot be considered either good or bad from the consumer's viewpoint, and must be weighed entirely on other grounds.

If the price which the producer receives for his good is increased because of the grading and packing, does it necessarily follow that the consumer pays the bill? This would, perhaps, have to be answered in the affirmative. However, it does not follow that this is to the detriment of the consumer; on the other hand, it might be to his benefit. He pays a higher price, but because of the higher quality of the product and the greater satisfaction which he secures from it, the cost per unit of satisfaction — if it were possible to arrive at such a thing — would probably be less. Packing and grading cost money. But as has been shown, these costs are to a great extent offset by advantages gained in marketing. In a great many instances, this cost does not result in a higher price to the consumer, but actually causes the price to be lower.

Care in handling produce as it is going through the market channel is an item of great importance. Proper packing and grading are methods of taking the proper care. Goods properly graded and packed do not deteriorate rapidly. However, there is a limit to the degree of care which it is economical to give. Lettuce may be packed in hampers and shipped to the city wholesale market, and from there to the retail store. Because of the method of packing lettuce, a great portion of the outer leaves may be damaged and in such a condition that the consumer will not purchase the head. It is then necessary to trim off the damaged portion. This is all waste, which must go into the garbage and be carted away. All this causes labor. The lettuce might have been packed so that there would have been no waste at all. On the other hand, it must be remembered that it costs time and money to pack goods, and it is very probable that it does not pay to pack lettuce in a better manner than is now the practice. The cost of the extra precaution necessary to prevent waste might be greater than the saving made. There are evidences of waste all along the market channel, but it must not be supposed that this is bad. It might be

more economical in the long run to incur the losses resulting from this waste rather than make the necessary effort to prevent it.

In general, grading and packing may be considered as an expense, but as a type of expense which results in a better product and a saving of goods from deterioration. If all the factors which tend to increase price and those which act in the opposite direction could be assembled, it would be found, no doubt, that these services result in a reduction in the price to the consumer rather than in an increase. This is an item, however, which can probably never be quantitatively measured.

Grading and packing benefits are to be desired for the reasons already given, and these practices are to be encouraged in the interests of better marketing and better products for the consumer. However, there are certain classes of people who are not able to pay the price for these high-grade goods. These people who are near the margin must buy things which do not cost so much. The item of appearance cannot be paid for because of the lack of funds, and the more substantial quality of nourishment must be given preference. To such people, some bulk goods will appeal more strongly than packaged goods. They will buy more of the products of an inferior grade, because of necessity.

The service of grading and packing is one which the demands of the consumer have made necessary. It has developed and will continue to spread because it is economic and the net results of it are for the best interests of our entire economic environment. The net effect of it on the cost of goods, which the consumer must pay, cannot be accurately determined. Considering quality, the result is, without a doubt, a lower price; and how can prices be compared unless quality is considered?

CHAPTER IV

STORAGE

Since men or animals cannot always wander from place to place and cannot always find a growing supply of food which can be gathered, it becomes necessary to store away produce from the time of plenty for the time when Nature is not providing. The ability of man (and of some animals) to refrain from consuming all the products which are at hand during the harvest makes it possible for him to live in regions where seasons vary and production is not continuous. It is only in those communities where production continues throughout the year that man can survive without thinking of the future and making provision for the time of food scarcity. The characteristics of some races are such that they have no thought of the future and do not provide. This trait, no doubt, is a survival from the time when their habitation was in a region where Nature provided throughout the year.

Civilizations have developed and advanced in those regions where the climate made forethought and self-control in consumption necessary. These conditions caused man to develop a will and character. These have made it possible for him to inhabit almost the entire surface of the earth, rather than confine his habitation to those regions where Nature is a continuous provider. Settled habitations and the development of cities and communities, and the advance of civilization have been made possible because man has learned how to hold products over from a time of surplus to a time of natural scarcity, and has developed a will to do so.

Necessity of Storage. — The process of holding goods from one time to another is called storage and is one of the

most essential of man's activities. It is necessary for the following reasons:

1. *Production is Seasonal and Consumption is Continuous.* Almost every product which man uses is produced in season. Grains, fruits, vegetables, dairy and poultry products have their natural periods of high and low production. It is true that man has learned to modify production so as to make it nearly uniform throughout the year. By early hatching of chickens, proper feeding methods, and careful housing, an attempt has been made to smooth out the egg-production curve. Something has been done in this way, but it is difficult to work against the laws of Nature, and we still have the high egg-production months in the spring, as Nature intended. By regulating the breeding season of dairy cattle so that the cows would freshen at intervals during the year, an effort has been made to make milk production more uniform. As in egg production, entire uniformity has not been the result. Grains, fruits, and vegetables have their natural seasons, and man can do nothing to change this except to produce under artificial conditions with the aid of hot-houses. This method makes possible a supply of commodities out of season, but the quantity of such goods is insignificant. The producing season has been most effectively lengthened by improvement in varieties of plants and their adaptation to climatic conditions. Much has also been done by improving the methods of transportation. This improvement has made a greater range of climate and soil conditions available to each locality. Regardless of the great improvement of transportation and all the effort to keep a continuous supply of goods flowing to the market from direct production, a surplus must be stored.

2. *Marketing Takes Time.* It is impossible to complete the marketing process of any commodity immediately, as this process takes time. Hence, the goods must be held in some place where they will be properly kept. The demand

for products is so tremendous, the burden of getting the product to the consumer is so great, and the necessity for a continuous supply so paramount that in the interests of safety and because of the incapacity of the market system to deliver goods immediately, it is necessary to have a surplus stored away where it will be accessible. It takes time to gather goods and get them ready for the service of the market agencies.

Functions of Storage. — The primary function of storage is the preservation of the product. Proper storage facilities and methods assist in the marketing of all kinds of goods. In an address delivered at an annual meeting of the American Warehousemen's Association, the following statement was made concerning the purpose of an efficient system of warehousing:

“ An efficient system of warehousing has for its purpose the lending of every possible facility to aid in the free distribution of merchandise and at the same time providing in the warehouse receipt a method of convenient and economic transfer of title to stored goods; thus, the bulky goods are turned practically into paper currency so that transfer of property may be made from one person to another without physical effort or motion and its consequent cost.”¹

The functions of the warehouse or an adequate storage system may be stated as follows:

1. *Protects the Product.* The first important function of storage is the retention of the product in a good condition until it is desired by the consumer. Different types of storage houses are necessary for the different types of goods. Some products deteriorate very rapidly unless they are housed under the proper conditions of temperature and humidity. Proper storage will preserve quality and hold the good until the time when it is needed for consumption. While some products are subject to damage by the elements others are very resistant. Cotton is a type of good which

¹ Quoted from the U. S. D. A. Yearbook, 1918, p. 400.

does not deteriorate very rapidly under ordinary conditions. An efficient system of cotton storage would be justified, however, in the opinion of the United States Department of Agriculture, if its only function were that of protection.

“Cotton, when properly protected from the elements, offers great resistance to deterioration. Compared with other farm products, it is by far the least liable to ‘damage’ if given a reasonable amount of protection; yet it has been estimated that the annual loss to the South from so-called ‘country damage’ is from \$30,000,000 to \$75,000,000. The most conservative of these amounts would pay the storage on the average crop of 14,000,000 bales for an entire year, figuring the monthly charge at 15 cents per bale, and still effect a saving of almost \$5,000,000. If it be assumed that approximately one-half of the crop suffers ‘country damage,’ the rapid movement of the remaining portion obviating such damage, it will be seen that to warehouse these 7,000,000 bales properly for 6 months would practically eliminate the damage loss. In this way, after paying the storage bill, over \$23,000,000 would be saved from even the minimum estimated loss. These figures show that the use of the warehouse is justifiable if its only function were to protect the cotton from ‘country damage’.”²

2. *Develops Quality.* The quality of some products improves with storage. Wines and liquors are probably the most outstanding example of this. Tobacco also improves with age. Cheese must be properly aged before it reaches the best quality stage. Sweet potatoes must be taken through a special storage process before they can safely enter the market. This process consists of drying and ventilating so that the excess moisture is removed.

3. *Makes Possible Movement of Goods in Large Quantities.* If small lots of goods can be assembled in a central place and there stored until the quantity is sufficient to permit movement in large volume, there will result a decrease in the cost of handling. Storage of these small lots makes such volume handling possible. In many instances produce is

² U. S. D. A. Yearbook, 1918, pp. 401-404.

marketed in a very inefficient manner, simply because the owner has no facilities for holding it for a while.

4. *Shifts Risk.* If goods can be placed in storage the risk can be shifted to the warehouseman. A part of his function will be that of assuming the risk and a part that of storing the goods. The service of risk assumption will be discussed in a later chapter.



FIG. 7. — This type of cotton "warehouse" is the most expensive. Someone must pay for losses such as these.

5. *Aids in Financing.* One of the important services of proper storage is that of aiding in the financing of the product. If storage facilities were not available, it would be very much more difficult to secure financial assistance. How storage assists in the financing of marketing is shown in the chapter on Financing.

6. *Broadens the Market.* If products could not be stored and held until some future time, it would be necessary to offer them on the market at once. By storage of the product the best market can be sought and a more favorable time can be selected to make the sale. The product that can be stored to the best advantage, other things being equal,

has an advantage in seeking a market. This will result in price stabilization.

7. *Regulates Flow to Market and Decreases Price Fluctuations.* It is a problem of vital interest to all classes of society that products be conserved and just as small a quantity of them be lost as possible. As long as the effort expended is not in excess of the value of the produce saved, every effort should be made to eliminate loss through deterioration. One of the surest ways of keeping goods from deteriorating and being wasted is to carry them through the market in as short a time as possible. Produce should be kept moving. The more perishable it is, the more necessary is speed. In order for goods to move rapidly, it is necessary that there be an adequate outlet for them. That outlet is the consuming public. Goods cannot move through a market more rapidly than the people will consume them. A flow more rapid than this will be dammed up at some place along the line and cause delays. When goods do not flow regularly, a physical loss usually follows. This loss means a loss in dollars and cents to the holder of the product.

To decrease this deterioration loss, an attempt is made to get rid of the goods as rapidly as possible. This causes a decrease in price. In order to make the outlet for the goods large, an attempt is made to attract more consumers or cause the consumers already in the market to consume more goods. This is done by decreasing the price. On the other hand, when, for some reason, goods do not flow to the market in a quantity sufficient to meet the demand, the price will be raised in order to decrease the outlet, or consumer demand, so that there will be sufficient goods to go around. According to the United States Department of Agriculture, heavy seasonal sales of cotton by farmers have depressed prices.

“ For a number of years past, the low tide of prices in the cotton market has occurred usually during the four months of the heavy marketing period. Figure 1 illustrates this

fact. The fluctuations of prices by months for midland upland spot cotton in New York for a period of 25 seasons, from 1892-93 to 1916-17 and the 'American into sight' movement for the same period are shown on this chart. Of the 25 cotton seasons shown, in 16 seasons the low average price actually occurred during September, October, November, or December — the four months of heaviest marketing.



FIG. 8. — A local country elevator and warehouse.

Of the exceptions, in 5 seasons the low average price occurred in the month either immediately preceding or following this period, and in two it occurred in July. There are only two glaring exceptions to this usual course of events, one being the season of 1907-8, when the lowest price was reached in April, owing to the general business depression prevailing and the prospects of extremely favorable acreage and condition reports preceding the heavy crop of 1908-9, which was the largest crop in history up to that time, and the season of 1900-01, when the low average price was reached in May.

"During the four months when the farmer usually is disposing of his product, the mere fact he is unloading the great bulk of it upon the market in such a limited period of time may alone be a sufficient cause for price decline. After the greater part of the crop is out of the hands of the producer, usually the price advances. The farmer is apt to

believe that this is the result of manipulation and that he is being discriminated against, when in reality the higher price is not necessarily the result of manipulation but probably is the logical result of more efficient marketing methods. The new owners, realizing the value of heeding the laws of supply and demand, distribute their sales over a period of time more commensurate with the needs of the manufacturer and thus, in a large measure, control price.”³

It is desirable that goods move to the market in such quantities that they *keep moving*. The movement of goods at a proper rate to meet the demand is also desired. This flow of goods should be regular, so that there will not be the necessity of price fluctuation. Adequate storage facilities assist in making this flow regular and therefore assist in the stabilization of price. However, it is not to be assumed that “orderly marketing,” or marketing distributed throughout the year, will stabilize the price of all kinds of produce. In the case of wheat there is already a stable market. This is due to the world-wide market and the adequate storage facilities for handling the crop in the large markets regardless of the rate at which it is marketed. Storage of the right kind will not cure all the ills of the market, but it is basic to an efficient market system.

The Proper Place to Store. — The proper place to store produce depends, of course, upon the nature of the produce itself. Some kinds of produce should be stored at the place of production or as near it as possible. The proper place for the storage of agricultural products is in the rural communities. There should be sufficient of these products stored near the places of manufacture or the large markets to make it impossible for a change in demand or a temporary breakdown in the transportation system to cause a shortage or serious inconvenience.

One of the prerequisites of an efficient operation of the transportation system of a country is that it be kept working as nearly uniformly as possible throughout the year. As is

³ U. S. D. A. Yearbook, 1918, pp. 400-401.

shown in the chapter on Transportation, it is wasteful to overtax the transportation facilities at harvest periods and have idle equipment during other periods of the year. This condition usually exists during our wheat harvest season. There is a great movement of grain to the central markets. Railroads are overtaxed in their effort to handle the load. One of the primary reasons why this grain must move to the market within such a short period of time is that sufficient storage facilities in the country regions are lacking.

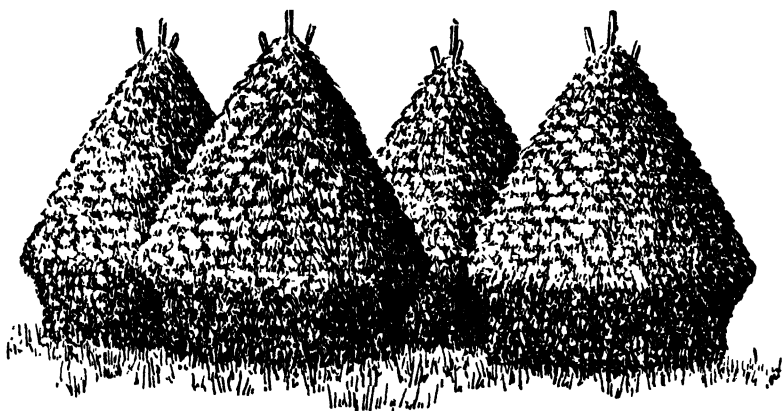


FIG. 9. — Good stacking provides satisfactory farm storage. (Courtesy Southwestern Wheat Improvement Association.)

If grain could be stored on the farm at harvest time and then hauled to the local market during the months when the work of the farm is not so pressing, a better utilization would result, and the local transportation would not cost so much. This, however, is conditioned on roads which would permit the handling of traffic throughout most of the year. If produce is stored on the farm, it is necessary for the farmer to assume the risk of shrinkage and price fluctuations and loss through destruction, unless it is insured. The movement of the bulk of the crop to the market at harvest time is one of the reasons for the seasonal fluctuation. If the movement could be more orderly and in harmony

with the need of the trade, a more uniform price would result.

Cotton is a product that must be hauled to the local market, usually as soon as it is picked, for the purpose of ginning. It would not be economical to have it hauled back to the farm for storage. The proper place for cotton storehouses is at the local ginning point. Storage of this kind can be better provided by a group of farmers on a coöperative basis than by individuals. The manner in which a great quantity of cotton is kept at the small country town is not to be classed as storage, as the cotton is placed on the ground without any protection whatever from the weather. Yearly losses due to such careless handling of this product amount to considerably more than enough to pay for proper storage.

Products, such as sweet potatoes, requiring a special type of storage are probably more economically stored on a coöperative basis, as the expense of providing proper facilities is greater than the individual can afford unless he has a large quantity. Potatoes also can probably be better stored at the local shipping point than at any other place. The necessity of keeping these products from the elements and of not handling them often are reasons which make advisable local shipping point storage.

Different Types of Storage. — In the broader aspects of the market problem, there is a difference in the kinds of storage. It is not because of any difference in the service to be performed that there must be different kinds of storage facilities; but rather it is due to a difference in the nature of the product stored. The problem from an economic standpoint resolves itself into one concerning the service of holding goods from one period to another and the effect on the price to the consumer. Of course, due consideration must be given to the problem of effect on quality. The study of the different kinds of facilities required for the proper keeping of produce is not a problem for the market

economist, but rather for the warehouseman, or cold-storage engineer.

Storage Facilities Classified. — 1. *Common Storage.* Common storhouses should be such as to keep the product from being wasted and, in most cases, in a dry condition. The granary must be so constructed that it will hold the grain, keep it dry, and shut out vermin. Such a storehouse can be utilized for almost any of the non-perishables. Other products, such as hay and cotton, do not require a storehouse of tight construction as there is no danger of these leaking out. Groceries, dry-goods, hardware, and practically all the non-perishables of commerce can be held over in common storhouses until the time when they are needed.

2. *Special Storage.* Some products, such as potatoes, sweet potatoes, and onions, require a special kind of storage. Temperature for such products must be kept rather uniform and not allowed to fluctuate above or below a certain point. Almost any type of warehouse will be suitable if so constructed that the temperature can be regulated. In most instances, special storage places, equipped with air-circulating devices, must be provided.

3. *Cold Storage.* A type of special storage for products whose nature requires that the temperature be kept at or below freezing is called cold storage. This type of storage is of such importance as to require special attention.

The classification of storage might also be made as follows: (1) Storage for non-perishables; (2) storage for semi-perishables; (3) storage for perishables. Cold storage in this classification is storage for perishables. The economics of cold storage do not differ from the economics of any other type of storage. The storage problem, regardless of its kind, involves the preservation of goods until needed.

One important class of products, principally used for food, is produced in very limited seasons and cannot be held over from the time of plenty to a time of shortage under ordinary conditions of warehousing. There are other goods

which can be produced only in limited sections of the country during certain seasons and, because of their great perishability, cannot be transported long distances to those localities where they cannot be grown. Special storage facilities — cold storage — have made it possible to keep these goods over a longer period of time and allow man to enjoy

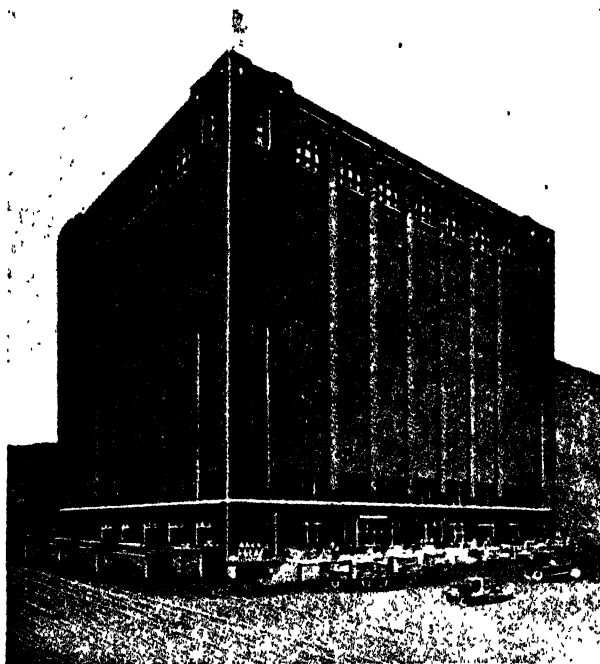


FIG. 10. — A modern cold storage plant.

these seasonal products over a greater portion of the year. These facilities have also enabled man to transport products from one climate to another and have made it possible to set before him the perishable products of almost every clime.

Magnitude of the Cold-storage Business. — The amount of cold-storage space in the United States on October 1, 1922, as determined by the Bureau of Agricultural Economics, is shown in the following table.⁴

⁴ Adapted from Statistical Bulletin No. 1, U. S. D. A., Table 7.

Class of Business	Number of establishments	Cubic feet Total space
Public cold storage.....	353	199,321,640
Private cold storage.....	261	16,451,556
Combined public and private cold storage.....	222	43,935,581
Meat-packing establishments.....	455	261,353,408
Meat-packing establishments doing a public cold-storage business.....	24	38,076,040
Total refrigerated space.....	1,315	559,138,225

To show the extent to which cold-storage space is used in the preservation of food products, the following tables, taken from U. S. D. A. Statistical Bulletin No. 1, are given.

COLD-STORAGE HOLDINGS OF APPLES (BARRELED AND BOXED) COMBINED IN TERMS OF BARRELS*
 [In thousands of barrels; i.e., 000 omitted]

Year	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1	Commercial crop† (1000 bbls.)	Per cent in storage‡ Dec. 1
1915.....	4,283	3,585	2,491	1,343	474	108					3,689	5,441		
1916.....	4,813	4,236	3,242	1,964	1,035	304					3,260	4,492	26,747	16.8
1917.....	4,132	3,365	2,442	1,545	808	265					3,296	4,680	22,341	21.0
1918.....	4,599	3,957	2,830	1,783	678	159					3,752	4,928	24,743	19.9
1919.....	4,394	3,105	1,772	956	380	125					4,523	5,923	26,159	22.6
1920.....	5,529	4,524	3,162	1,699	806	213					4,475	6,787	33,905	20.0
1921.....	6,386	5,105	3,650	2,210	1,119	445					3,643	5,739	21,557	26.6
5-yr. ave.....	4,988	4,015	2,771	1,639	758	241					3,938	5,613	25,741	21.8
1922.....	5,429	4,313	3,090	1,930	944	314				1,432	5,321	6,743	31,080	21.7
1923.....	6,481	.....	.....	.....	.....	.....				.....	.....	.....	.....	.....

* All apples, excepting those packed in western-style boxes, are tabulated in terms of barrels, on the basis of 3 bushels to the barrel. Three boxes are considered the equivalent of 1 barrel.

† U. S. D. A. Yearbook, 1922.

‡ Author's calculations.

COLD-STORAGE HOLDINGS OF CREAMERY BUTTER
[In thousands of pounds; i.e., 000 omitted]

Year	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1
1915.....	48,977	31,139	15,033	3,346	1,082	7,017	53,963	68,578	101,662	99,450	92,719	71,649
1916.....	46,134	30,474	16,962	6,505	3,607	9,953	49,982	102,537	105,856	100,522	85,260	67,292
1917.....	50,726	26,618	18,808	14,629	9,536	12,698	49,140	88,305	108,179	109,154	100,115	79,928
1918.....	43,910	36,777	24,191	11,909	9,559	29,435	90,158	123,546	99,334	87,983	80,874	65,111
1919.....	53,737	38,359	22,568	12,555	7,554	12,872	52,526	101,455	131,388	121,816	100,474	73,654
1920.....	58,682	41,486	27,103	14,732	7,712	21,982	61,991	82,538	115,558	113,385	101,778	79,750
1921.....	50,639	34,743	21,924	12,126	7,614	17,328	60,759	97,027	92,292	90,116	77,983	65,129
5-yr. ave.....	48,412	35,047	22,582	9,113	3,830	13,202	67,410	103,151	109,350	104,471	92,245	73,714
1922.....	26,819								112,039	96,680	73,857	47,773
1923.....												.....

COLD-STORAGE HOLDINGS OF PACKING-STOCK BUTTER*
[In thousands of pounds; i.e., 000 omitted]

Year	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1
1916.....	1,785	1,643	868	364	173	313	1,319	3,447	3,695	3,333	2,645	2,284
1917.....	2,046	1,566	985	1,328	1,941	3,438	4,779	5,276	3,320	3,380	3,408	3,403
1918.....	1,381	1,196	1,340	859	825	888	1,908	3,074	5,421	4,060	3,394	2,328
1919.....	1,410	1,520	1,472	1,149	704	712	1,916	2,970	3,314	3,441	2,671	2,098
1920.....	2,773	2,847	2,626	2,216	2,181	2,651	2,793	2,704	3,548	2,149	3,528	3,139
1921.....	1,880	1,758	1,434	1,183	1,177	1,610	2,543	3,494	2,519	3,483	2,941	1,427
5-yr. ave.....	1,904	1,447	1,538	1,165	972	1,252	1,884	2,173	3,624	1,971	2,941	2,479
1922.....	608								2,186	1,971	1,621	971
1923.....												.....

* Packing-stock butter includes all dairy and farm-made butter that is to be used in making laded and renovated process butter.

COLD-STORAGE HOLDINGS OF ALL VARIETIES OF CHEESE

[In thousands of pounds; i.e., 000 omitted]

Year	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1
1917	69,619	58,495	39,836	29,978	19,937	23,087	35,225	56,792	95,461	94,421	81,423	78,513
1918	30,225	25,748	18,608	15,102	14,838	23,201	51,407	78,394	68,970	54,800	44,366	37,473
1919	64,694	54,416	43,656	32,144	25,605	23,341	44,504	70,034	92,589	96,593	87,980	76,414
1920	51,169	40,297	30,456	24,908	23,940	28,453	47,617	56,317	80,258	74,982	69,092	58,800
1921									62,903	62,366	59,505	49,002
5-yr. ave.									80,035	76,632	68,475	60,041
1922	41,594	33,001	25,477	19,339	18,980	24,070	43,542	57,763	66,875	62,923	53,815	48,620
1923	45,294											

('OLD-STORAGE' HOLDINGS OF CASE EGGS

[In thousands of cases;* i.e., 000 omitted])

Year	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1
1915	1,508	458	35	264	2,327	4,563	5,574	6,060	5,683	5,019	3,687	2,788
1916	920	149	7	190	2,105	4,922	6,617	6,895	6,436	5,837	4,638	2,948
1917	1,300	200	39	344	2,967	5,499	6,364	6,368	6,369	5,369	3,812	2,071
1918	740	130	26	320	3,278	6,098	7,659	7,850	7,685	6,838	5,087	3,341
1919	1,342	342	29	122	2,135	5,143	6,747	6,872	6,372	5,295	3,838	1,824
1920	408	43	43	1,826	4,909	6,844	7,531	7,605	7,210	6,269	4,380	2,403
1921												
5-yr. ave.	982	173	25	580	3,077	5,701	7,022	7,135	6,794	5,926	4,351	2,517
1922	589	179	13	950	4,648	8,056	9,811	10,161	9,808	7,924	5,726	3,257
1923	1,311											

* 3-dozen cases.

COLD-STORAGE HOLDINGS OF FROZEN EGGS

[In thousands of pounds; i.e., (000 omitted)]

[illegible]

COLD-STORAGE HOLDINGS OF FROZEN POULTRY

[In thousands of pounds; i.e., (000 omitted)]

[illegible]

TOTAL STOCKS OF MEATS IN COLD-STORAGE WAREHOUSES AND MEAT-PACKING ESTABLISHMENTS

[In thousands of pounds; i.e., 000 omitted]

Year	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1
1917.....	803,669	875,450	913,639	831,990	827,951	831,567
1918.....	961,378	1,117,965	1,265,554	1,354,961	1,319,328	1,299,779
1919.....	1,199,292	1,452,312	1,436,378	1,388,764	1,332,443	1,283,768
1920.....	1,015,558	1,186,530	1,278,729	1,304,142	1,251,508	1,208,728
1921.....	820,245	976,058	1,138,033	1,107,706	1,042,552	1,017,299
5-yr. ave.....	982,461	1,141,467	1,226,686	1,221,209	1,173,350	1,145,527
1922.....	580,603	624,276	680,553	717,417	712,887	745,022
1923.....	754,489					

Year	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1
1917.....	878,598	893,472	778,119	632,892	587,245	709,043
1918.....	1,144,377	1,136,501	1,035,861	995,326	882,320	938,066
1919.....	1,254,437	1,171,381	1,061,274	984,259	880,719	865,101
1920.....	1,194,464	1,115,082	977,225	783,777	670,235	653,036
1921.....	989,462	899,406	776,951	607,455	490,648	504,659
5-yr. ave.....	1,110,492	1,043,169	925,893	782,723	702,226	734,501
1922.....	816,689	788,324	727,111	580,188	512,396	569,165
1923.....						

Effect of Storage on Quality. — Non-perishable goods do not, as a rule, deteriorate in storage. The quality of such products is stable and will not change if they are held over a long period of time. Perishable products generally begin to deteriorate at the time of harvest, some very rapidly and others more slowly. Special storage — cold or otherwise — is for the purpose of retarding this deterioration. Some products, such as butter, eggs, meats and poultry, can be put into cold storage and kept for a considerable length of time. We are desirous of knowing whether the quality of such products is affected. Since every perishable product is certain to deteriorate in time, it is natural to suppose that any lapse of time has an affect on quality. Cold storage is primarily intended to retard this deterioration; it does this for different products with varying degrees of success. The length of time these various good products can be safely kept is fairly well known. The problem is not altogether one of determining whether cold storage affects the quality of the product, as long as it keeps it in a condition suitable for food purposes. Indeed, it is not altogether a question of whether the consumer prefers fresh goods to cold-storage goods. The real question, in most cases, is whether the consumer will use produce kept in cold storage or do without it.

The best example of the effect of cold storage on a market is that of eggs. Everyone prefers the fresh egg. However, if eggs are stored under proper storage conditions, they keep very well for a considerable period of time, and it is doubtful whether the egg which has been in cold storage for six months can be easily distinguished from the fresh egg by its taste. This question of preference is not the paramount one. The real question is whether the public will eat cold-storage eggs or go without them.

Cold-storage facilities have made it possible to have a ready supply of meat products, and the dangers of shortages have been eliminated. Cold storage does for perishables what storage in general does for all classes of products. It

renders the additional service of retarding deterioration and making foods available over a longer period of time and over a greater area.

Effect of Storage on Price. — As has been noted, one of the important services of storage is the equalization of price. Cold storage has had an influence on the price of butter and eggs. Results of a statistical study of the butter and egg market, showing the seasonal fluctuations for two periods, 1880-92, before cold storage had come into general use, and 1902-11, when cold storage was commercially important, are set forth in the following table:⁵

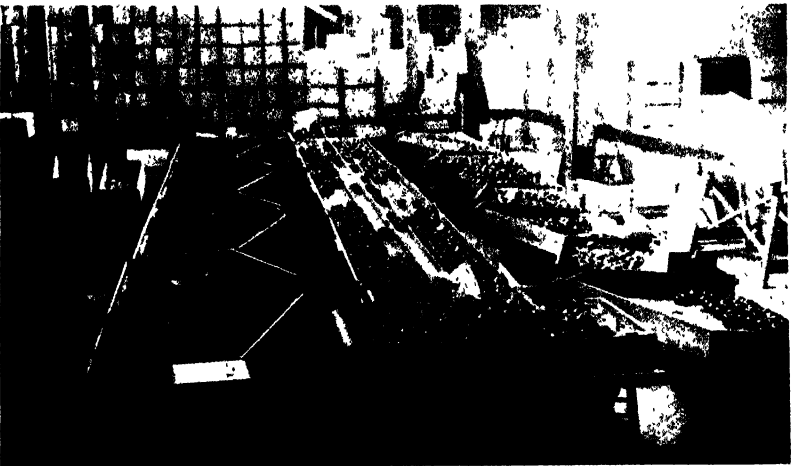
	1880 to 1892 (cents per lb.)	1902 to 1911 (cents per lb.)
Butter:		
Average price May to Aug.	21 9	23.4
Average price Nov. to March (fresh). . . .	34 3	28.9
Average price Nov. to March (cold storage)..	. .	26.7
Eggs:		
Average price April to July	15 8	18.7
Average price Oct. to Feb. (fresh). . . .	25 7	28.1
Average price Oct. to Feb. (cold storage)...	. .	22 4

It will be seen that the price has not fluctuated as widely since storage facilities were made available. The price during the months of high production has been increased because there has been a new demand brought into the market — that of the storer. During the months of low production, the prices are relatively less because there has been a new supply brought into the market — that of the storer. The storer has come into the egg market, and performs the service of making the period of egg consumption continuous by decreasing, by means of cold storage, the factor of egg perishability. Since the greatest quantity of production

⁵ From a paper written by Mr. Urner of the Urner-Barry Company of New York City, for the Convention of American Warehousemen's Association at Pittsburgh, December, 1912. (Taken from Weld, "Marketing of Farm Products," p. 160.



Cotton stored in this warehouse is really protected. *Courtesy U. S. D. A.*



Apples must be carefully graded to bring the best price. This type of grading equipment enables the shipper to send only quality fruit to market. *Courtesy U. S. D. A.*

occurs during the periods when the supply is so much greater than the consumption, storage has resulted in increased income for the producer. It is true that the producer must now take a lower price during certain periods of the year; but at such times the quantity which he has for sale is so small that this loss does not offset the additional amount he gets through a higher price during the high-production period.

Cold-storage facilities and refrigeration during transportation have made it possible to bring perishable produce from a distance and to offer it on the market at times when it could not be grown locally. Refrigeration has made it possible to make the area of supply greater for each locality. This has resulted, in the case of the perishable out-of-season product, in a higher price than would normally prevail. For example, lettuce and other green vegetables can be had on the city market throughout the year. This is made possible by improved methods of handling. The price which must be paid for such produce is naturally higher than that of produce grown in the locality during the normal growing season. The higher price which is paid is not entirely for the product but for the convenience of having it at a time when Nature does not provide it. The more perishable the product, the greater the premium which must be paid in order to have a continuous supply of it.

The increased prices which have prevailed during recent years — disregarding the abnormal war prices — have been due largely to the desire of the consumer to have goods which must be brought in from a distance and those which are grown out of season. The expense of offsetting natural scarcity is great. If we are to have fruit and vegetables out of season, we must pay the price for them. Cold storage has made this possible, and what is most remarkable is that the expense of handling produce in such a manner has been so slight that these luxuries, which were not available even for the wealthy a few years ago, can now be found on the tables of the masses.

It costs more to live now. A greater sum is being paid out for food than ever before; but, if an accurate comparison were possible, it would no doubt be revealed that the cost per unit of satisfaction which we now enjoy is considerably lower than it was fifty years ago. It costs more to live than it formerly did because we live in a fuller measure. We get more; therefore we must pay more. Science has made it possible to overcome many of the deficiencies of Nature and has placed within the reach of man things which were formerly thought to be unattainable. Either the animal migrates when the rigors of the climate are too severe or Nature changes his coat. Man advances in civilization to the extent that he can live his natural life in spite of unfavorable climatic conditions and can force Nature to assure him a livelihood. Transportation facilities and equipment which preserves food are two of man's greatest aids in making this possible.

CHAPTER V

TRANSPORTATION

Adequate transportation facilities are among the most important prerequisites of an efficient market system. There can really be no market, other than that of a local nature, unless goods can be moved safely, in some instances quickly, and at a cost which is not prohibitive.

Before the development of industry as we know it to-day, markets were local. There was very little trade between localities widely separated. The little trade that was carried on was in non-perishable products of high value and small bulk. The trade of former days was in such products as spices, precious stones and jewels, fine cloth, and other things which could be handled easily. Products of everyday use, which comprise the bulk of the goods used by man, did not enter into the channels of trade. Communities were self-sufficing. There was no specialization except to a very small degree. The household, like the community of which it formed a part, was almost entirely self-sufficing, even in the towns and cities; while in the country, as compared with the city, commercialized activities are of a recent date. Large cities were unknown until recent years. In 1850 there were only six cities in the United States with a population of more than 100,000 and only two above 200,000. In the world there were only two cities in which there were more than one million people living. The city of 1850 was, indeed, unlike that of the present day. In that period the large city was more like the small country village of to-day, the only real difference being that there was more of the city. The city was very largely a self-sufficing unit. The garden was a common adjunct to the house, and a great quantity of food was grown within the limits of the city. The food

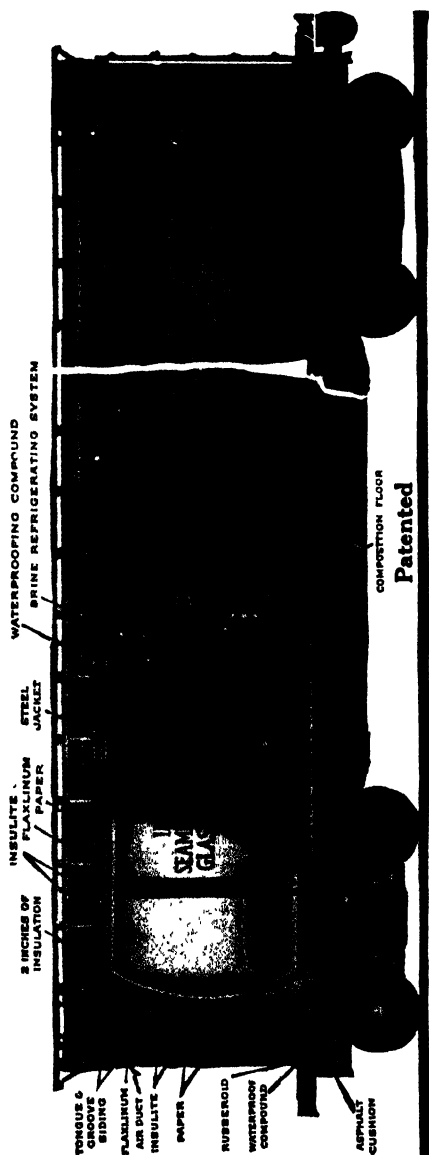
products which were not grown in the city garden came from nearby farming sections. This was not due to any desire on the part of the people that such a practice should continue, but was necessary because there was no way to get great volumes of food products from a distance. Unless goods can be transported from one place to another, each community must produce the things it desires or else go without them.

Effects of Rapid Transportation. — Railway transportation has changed our entire economic life. Rapid transportation has had the following effects:

1. *Widened Markets for the Seller.* As soon as it became possible to transport goods from one place to another, the producer had an opportunity to offer his product to a greater number of buyers. The market was no longer restricted to the one locality in which the goods were manufactured or grown. The greater the efficiency of the transportation facilities, the greater the market area will become. Market area for perishable products was very restricted until rapid transportation was made available. This widening of the market enabled the producer to offer his product in any one of various places and thereby secure a better price. The producer is no longer at the mercy of any particular market.

2. *Widened Area of Supply for the Consumer.* Unless products can be brought in from other producing centers, consumers are entirely dependent upon the supply which is forthcoming from the immediate vicinity. The price which is the result of local market forces must be paid or the consumer must go without things. Local conditions predominate.

3. *Stabilized Prices.* If goods can move freely from one place to another, they will seek the best market, the tendency always being for them to go to the market which offers the highest price. On the other hand, the buyer seeks the lowest price. Therefore, if goods can be moved profitably, the buyer will go to the market where he can buy to the best



**X-Ray View of Passenger-Express Milk Tank Refrigerator
Designed and Built by General American Car Company**

Fig. 11. — Modern methods of handling and transporting enables the supply of milk to always be sufficient to meet requirements. (Furnished by the courtesy of the General American Car Company, Chicago, Illinois.)

advantage. This free flow of products from one place to another eliminates to a great extent the difference in advantages due to localities. Maine produces a great quantity of potatoes. If it were not possible for these to be moved, the price would be very low; while in some other places where the production is low, prices would be high. There is also a reaction on prices which results if there happens to be a shortage or a surplus in any particular community. Transportation is one of the greatest forces in price stabilization.

4. *Equalized Supply.* If it were not possible to move products from one community to another, there would be great shortages of food products in different communities each year because of crop failures. Famines would occur, as has been the rule in times gone by, and as is the case in some countries to-day, where transportation facilities are not adequate. Transportation permits the moving of products from places where there is more than enough to meet the local demand to places where there is an insufficient quantity. These products are drawn from the places of surplus to the places of shortage, because of the difference in price which prevails. This movement is made possible by transportation. Because of this service, transportation is one of the greatest essentials to the development of a stable population and of civilization. It is impossible to estimate the yearly loss in produce which would result from inability to move surpluses, and the suffering which would be caused by lack of facilities for bringing in sufficient food. A great deal of waste would naturally occur, as it would be necessary, from the standpoint of safety, to attempt to produce more than sufficient to meet the demand so that if a bad crop resulted there would not be a serious shortage. Adequate transportation has made it possible to move products to places where they can go into consumption.

There are, of course, many instances where the facilities for moving products are not adequate. To-day we often

find crops so abundant in all sections of the country that the price is depressed to such an extent that it does not pay to place all the product in the channels of the market. Our movement of goods to the market is not yet perfected. However, this condition does not arise altogether because of the deficiency of the market and transportation facilities; in most cases it is due to the fact that production is not regulated in such a manner that the supply is in harmony with the demand.

5. *Encouraged Specialization.* The outstanding advantage of modern industry and commerce over that of former times is usually believed to lie in the greater degree of specialization which now prevails. Everyone has become a specialist. Specialization has developed a skill which has resulted in a greater amount of production per unit of effort and expense. The specialist is one who has become proficient in the creation of the something which man wants. Large-scale production and machine processes are now possible. This specialization or division of labor, prevails in many forms. There is specialization by trade. Each man can devote himself to the activities in which he is most proficient and out of which he gets the greatest enjoyment. Each man is not forced to make all the things he needs for his own use. Each community can devote itself to the production of certain kinds of products. Because of climate, natural resources, or the adaptability of the people, some communities are more efficient than others in the production of certain things. If these goods can be produced in abundance and moved out to other communities and the other products which this community desires can be brought in, then the advantages of specialization can be obtained. Transportation makes such advantages possible. The localization of many different types of agriculture has been possible only because of the easy manner in which goods can now be taken from one part of the country to another. In fact, transportation has been the only thing which has made

it possible for agriculture to change from the domestic to the commercial system.

6. *Extended the Spread of Population.* The population of the United States in 1880, over one hundred years after the signing of the Declaration of Independence, was approximately fifty million. It was about this time in our history that the transcontinental railways were completed and the frontier was crossed.

Forty years later, the census of 1920 showed a population that had doubled in number since 1880. Our population increased more during these forty years than during all the other years of our history. This increase would not have been possible had it not been for transportation facilities which permitted products of the great Middle West to be carried to market. It was equally necessary to transport the products which these settlers needed from the factories which had been developed in the eastern parts of the country.

Transportation has been a vital factor in the development of vast territories which were practically valueless to man a very few years ago. Concerning the importance of transportation, Henry Clay, the English economist says:¹

“ Cheap transport encourages the full utilization of special local advantages such as climate, soil, traditional skill, established organization; the production of goods where they can be produced cheapest; the progressive localization of industries; and the use of the resources of each district for the benefit of all districts. Trade began in luxuries; with improvements in roads and the art of navigation, it extended to comforts; in the nineteenth century, with the application of steam power to transport, it extended to the necessities of life. Transport is now so cheap that in advanced industrial countries districts are like individuals, specialized in production and dependent on exchange for the satisfaction of their most important wants. Because the localization of industries, with all its economies in production, is dependent on cheap and efficient transport, the

¹ Economics for The General Reader, p. 37.

transport industries are, with the steel and coal industries and the credit system, at the foundation of the modern industrial organization."

The student of markets must look at the problem of transportation from the economic viewpoint and get a realization of its import. Transportation is a part of the process of production just as surely as are the activities which bring the product into existence. It is as necessary for man to have a good at the place he desires it for consumption, as it is that it be in the proper form. This service of creating the place utility, or of taking the product to the place where it is wanted, is sometimes of greater importance than all the other services of production combined, and may cost more. Transportation must be considered as a part of production costs.

Essentials of an Efficient Transportation System. — To be efficient as a market agency, the transportation system must be such that products can move to the market when demanded there and be enabled to get into the best market. Such a system must meet the following requirements:

1. *Quick Service.* Some products are perishable and must be handled in such a manner that there will be little deterioration because of the lapse of time. The transportation system should be such that perishable produce can be moved long distances and thereby enjoy a wider market. If the transport service is slow, a wide market is not possible. The slower the service, the more restricted the market. This applies to all kinds of green vegetables, fresh fruits, milk, and other perishable products.

2. *Careful Service.* Goods moving to market must be handled with care by the workman doing the loading and unloading and by the train crew in the movement of the trains. Careless handling will cause the bruising of the produce, and in some instances its actual destruction.

3. *Facilities for Keeping Product at Proper Temperature.* The bulk of perishable and semi-perishable products must

be kept at certain temperatures or rapid deterioration will result. This is especially essential during the period of transportation, as the goods are being moved from location to location, and under these circumstances the temperature is apt to vary. It is impossible to make an accurate estimate of the loss of food products brought about by faulty temperature, but the yearly loss is unquestionably enormous. The loss due to freezing of potatoes in transit is enormous each year. Fruit must be iced to be kept cool enough to withstand the delay in consumption. Refrigerator, heated, and



FIG. 12. — The refrigerator car permits a wider distribution of perishables.

ventilated cars are an essential part of the equipment of our transportation systems. If goods cannot be protected from deterioration by maintaining a suitable temperature, it is an economic loss to start them on their way to a market. Wherever a transportation system fails to provide these proper facilities, it is not meeting the market demand for some products.

4. *Adequate Facilities.* Almost every year there is a shortage of equipment for the movement of some crop. This is usually true of the staple cereal crops, whose volume is so great. It may happen also in the marketing of fruits

and other produce that requires special equipment. This is a problem which is of vital importance to the farmer and likewise to the transportation company. The farmer wants his produce moved to the market. The transportation company wants to move these goods, but it cannot afford to keep sufficient equipment on hand to move the entire crop within a period of a few weeks. This point is further discussed under the title "Importance of Distributing the Work of Transporting."



FIG. 13. — Good roads and the motor truck make quick handling of milk possible.

Many communities are not able to send their produce to market in competition with other places, because there are no transportation facilities at all. Certain sections in which it would be possible to develop a good fruit, vegetable, or milk business are entirely lacking in transportation facilities. To be adequate, the transportation facilities of a country must be so equipped as to take care of the produce quickly

and efficiently, and must also be of ample capacity to provide this type of service to all producing and consuming sections.

5. *Reasonable Costs.* Transportation adds value to a product. The cost of this service should not be more than the value added, or goods will not be transported. If the transportation charge is greater than the difference between the market price of the produce, and the cost of production, there will not be a continued movement of the good. There are wide variations in the prices in different markets when goods cannot move freely from one place to another. If the cost of this movement is greater than the difference in the prices at the different markets, it will not be profitable to do the transporting.

The Importance of Distributing the Work of Transporting Evenly Throughout the Year. — The best market conditions exist when goods move freely from day to day. A large quantity of produce delivered to the terminal markets within a short period and then placed in storage, there to await the demands of the consumers, cannot always be disposed of to good advantage. If it is perishable produce, it may be a total loss, for the reason that it cannot be stored for any considerable length of time. Such produce must move to the market at the times and in the amounts desired or there will be a loss. One of the great evils of the perishable produce markets is that movement of goods causes gluts and resulting losses. Such losses include not only the goods themselves but all the services which have been bestowed upon them, including that of transportation.

The staple cereal crops are, as a rule, rushed into the terminal markets within a short period after harvest. This desire to move goods directly to market causes the facilities of the transportation companies to be overtaxed. It is almost impossible to have sufficient equipment on hand to meet the requirements of the busy seasons. An effort to do so would lead to waste, since a large portion of the equip-

ment would doubtless be idle throughout the greater part of the year. Such products should be moved to market more gradually. They should move in response to the demand. If such were the case, the rush and slack seasons would be appreciably modified.

Who Pays the Transportation Bill? — This is a question which is constantly being asked by the farmer and the consumer. The cost of transportation is a part of the cost of placing a finished product in the hands of the user. The consumer must pay the entire cost of production and transportation, otherwise the goods will not continue to come. Transportation costs become a serious problem when subject to frequent changes or when they are not the same for different communities or different individuals. It is the changing or the discriminating rate which causes trouble and disrupts business. Transportation, being a part of the total cost of providing the consumer with a certain good, is a charge which must be paid by him. In like manner all other costs, whether for labor or seed, must be paid by the consumer, for it is only out of the proceeds of the sale that these costs can be finally met.

An increased transportation rate may not be reflected immediately in a higher price to the consumer. Under the stress of competition, the market price is ultimately forced down to approximate the cost of production; any increases in the cost of transportation could not then be met by the producer without entailing a loss to him. Under such conditions the marginal producers would be forced out of business except as the consumer pays a higher price. If some producers were forced out of business, the supply of produce which went to the market would decrease and the tendency would be for the price to rise. On the other hand, if the consumers were willing to pay a higher price rather than do without the commodity, the entire added cost of the transport service would be borne by them.

Should the consumer refuse to pay the added transpor-

tation cost, the marginal producers would have to go out of business, while the others would have to be content with a smaller margin of profit. Under such conditions, the producer would have to bear the burden of the increased transportation costs. As a result, some consumers would be undersupplied because of the lesser quantity of goods coming to market. In its turn, this would lead to increased price for the buyers still in the market. An insufficient quantity of goods would force the buyers to offer a higher price in order that they might be able to secure the quantity of goods desired. It is only when all buyers are on the margin that a decreased supply of goods will not cause the price to increase.

A monopoly might consent to pay the increased cost of transportation rather than raise the price of the product. It might be that any increase in the price would cause the net profit to decrease more than the bearing of the additional transportation would cost. No general rule can be laid down here, for the conditions might be different for each monopoly. In spite of higher transportation charges, the price of the monopoly good will not be raised where this would lead to decreased profits.

Equality of Transportation Opportunities. — Lack of equal opportunity for all producers to utilize the transportation facilities will cause injustice which will retard the movement of goods to the market and tend to stifle competition. In the early years of our railway history, many shippers were given special privileges and granted rebates. These advantages place competitors on an unequal basis, and those who enjoy them can afford to sell goods at less than the real cost of getting them to the market. It is supposed that the rebate evil has been eliminated. The inequalities of transportation opportunities are being gradually done away with. However, it is probable that some still exist.

The large shipper who has a private car line and can always get equipment possesses certain advantages. These

advantages are in most instances due to the financial power of the companies enjoying them, rather than to any particular favor granted them by the transportation company. It is charged that the packers had advantages in the transportation of groceries and that because of these advantages wholesale grocers and jobbers could not compete with them.² This, if true, would result in the gradual elimination of the

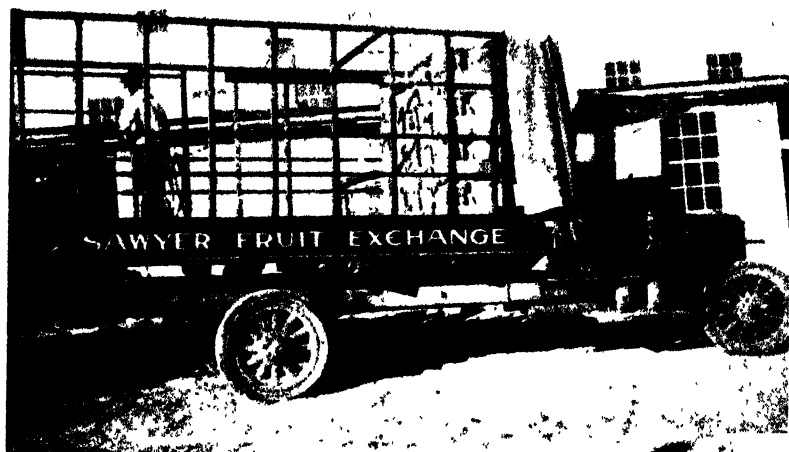


FIG. 14. — This truck takes fruit directly to the city retail market.

wholesaler and the expansion of the packer in this line of business. Should this practice continue, the final result would be a monopoly of the grocery trade by the packers. Fear on the part of the wholesalers that the packers would drive them out of business was the cause of opposition. Whenever monopoly is a result of efficient business methods, it may serve the best interests of society, provided it is properly controlled. If the monopoly is the result of special advantages, it is to the detriment of society, and is to be condemned.

Local Transportation. — The same underlying principles apply to the different forms of transportation, whether it be

² F. T. C. Report of Meat-Packing Industry, pp. 56-69.

railway, water, or highway. The fundamental points which must be considered in connection with highway transportation are the kind and efficiency of the vehicles and the condition of the roads. The perfection of the gas engine and the auto truck has made it possible for the farmer to transport produce to more distant markets. The range of the farmer's market has been extended; he is no longer restricted to the market within a few miles of his farm. If adequate facilities are not provided near the farm, other markets can be entered. Such improvements will help to eliminate the defects of the local market.

The truck will make it possible to carry perishable products to the city market. The good city market will thus draw products from a larger area than ever before, and the result will be that prices in the various localities will tend to be more uniform than formerly. This improvement in transportation facilities will reduce the amount of waste due to an oversupply in any community, for a better outlet will be provided. In some instances where goods can be loaded on a truck and taken directly to the city market, the loss through deterioration will be less. Produce loaded once and taken directly to a market will receive less rough treatment than if it were sent by railway. Good truck service will also be much more rapid and produce will come into the market in a fresher condition.

Truck transportation is dependent upon good roads. If this form of transportation is to be of any marked importance, there should be a great improvement in our highway systems. The building of an adequate system of highways will involve the expenditure of much capital. In many instances these highways will parallel railways and will, to a certain extent, duplicate equipment. The highway, however, will be used for purposes other than the movement of goods, will be utilized by more people, and will therefore tend toward social betterment. Should highway transportation be more efficient than transportation by rail, it

will become a dominant factor serving the best interests of society. At the same time it must be remembered that motor transportation has its limitations. The railway will continue to be the most efficient for long distances and bulky products, unless unforeseen developments occur.



FIG. 15. — The truck permits rapid handling of perishable fruits.

Factors Influencing Transportation Costs. — In a treatise like this it is unnecessary to deal with the question of actual transportation costs. These costs vary with different kinds of products and change from time to time. The percentage of the total price of products which goes to the transportation company is of little relative importance, for the reason that as prices change or rates change these percentages also change. Statistics have been gathered in the past giving this kind of data and were of value at the particular time, but there are no accurate figures now available which apply to the present conditions. This type of study can therefore have only temporary value.

In considering transportations costs, it is more important to determine the fundamental factors which cause transportation rates to be fixed as they are. What are the

things which cause rates to be high or low? What are the essentials which influence costs of this type of market service? These factors are: (1) distance; (2) bulk; (3) special attention and facilities necessary; (4) value.

1. *Distance.* Other things being equal, transportation costs vary with distance. The farther produce is from the market the more it will cost to transport it. Some sections are close to the market and because of location enjoy an advantage over those farther away. This advantage of proximity to the market is not retained by the producer, because the rent which must be paid for the use of the land will increase. It is possible for the landlord to secure the higher rent since the land is worth more because of its proximity to market. Producers close to the market, therefore, have a transportation advantage but are subjected to a higher rent cost. It is very doubtful whether proximity to markets increases the farmer's profits. Although the transportation cost depends to a great extent upon distance, this might be offset to a certain extent by competition between different transportation facilities.

2. *Bulk.* Other things being equal, it costs more to transport goods of large bulk and weight. Bulk takes up space, and less of the bulky commodity can be put into a car. However, it is generally true that produce of great bulk bears a lower transportation charge than do other kinds, because of other factors which enter into the cost.

3. *Special Attention and Facilities Required.* Some products require special facilities. Peaches and other perishable fruits must be shipped in refrigerator cars. Meats cannot be transported any distance except under refrigeration. Such products are more costly to transport than coal, which is not greatly affected by temperature changes and the elements. In case of the former products, special care and attention is necessary. Peaches and other perishable goods must be handled with care so that they will not become bruised and damaged. The more perishable a product, the

more care must be given to it and the more expensive is the transportation. The element of time is quite important. If a product must be given special rapid facilities, the cost is greater. Fruits or vegetables which are sent across the continent in special trains are types of products which are expensive to transport, and this special service must be paid for.

4. *Value.* From the standpoint of the cost of transporting goods, value has very little influence, except that the risk to the transportation company is greater in the case of goods of a high value. Rates are higher, other things being equal, on high-value goods for the reason that these goods can stand a higher rate. From the standpoint of railway rate theory, the high-value good will bear a higher rate. This higher rate will be charged, and yet the transportation cost as related to the sale price of the product might not be any more, and in most cases even less, than that on cheap goods.

The Effect of Increased Transportation Rates. — An increase in transportation rates has a very decided effect on the market system. Markets develop gradually and in harmony with the various factors of production. The development of transportation makes the rise of markets possible. Certain producing areas are brought into use, or certain produce is localized in certain communities in response to the factors of the market which make it desirable that such production should develop. It may be that a certain product is grown in a particular locality because transportation has made it possible. As has been shown above, transportation tends to widen the market. An increased rate will cause a market to become more limited. As transportation is extended and made cheaper, it is possible to bring produce from greater distances to markets. This tends to cause land at a distance, which has been sub-marginal, or unprofitable to cultivate, to be brought into use. Land which is closer to market, and possibly not so fertile, cannot produce

as cheaply and will therefore become unprofitable or sub-marginal.

Increased transportation costs act in the opposite way. The land at some distance from the market cannot compete because of the great cost of carrying its produce and it may again become sub-marginal. The land close to the market will have an advantage as to location which will offset its disadvantage as to fertility, and will rise out of the sub-marginal class. Increased transportation costs, therefore, may be said to reduce transportation possibilities and to tend to cause each community to turn back toward a self-sufficing state. This condition does not necessarily result unless the increase in costs is very great. It is doubtful whether the transportation companies can afford to leave their rates high enough to bring about this condition.

The essential requirement of an adequate transportation system is that it provide a service which will permit a free flow of goods from one market to another. In order to survive, the transportation companies must see to it that economic conditions are such that goods will flow from one locality to another. If goods do not move, then the business of the transport companies has come to an end.

Can Transportation Costs be Reduced? --- Society is becoming more complex as the years go by. Producing sections are more widely separated from the large centers of population. This separation, as regards actual distance, is not growing greater; but the burden of transporting from one place to another is measured more in terms of effort necessary than of the distance in miles. Because of the great increase in population and the congestion in the cities, it is more difficult to carry goods from the producing sections to the consumers than formerly. This increased cost is due largely to the congestion within cities and the delay and difficulty in transporting goods over the city streets. Streets and roads are not in proper condition. The heavy traffic makes travel slow and delays are costly. It is very doubtful

whether trucking costs within the cities can be reduced to any extent until there are some radical changes made in the methods used. These changes might consist of restricting certain streets for the use of trucks, or the building in some cities of elevated roadways for certain kinds of traffic. City congestion is undoubtedly a vital cost factor.

With an increase in the amount of traffic handled by the railways, it would appear that costs ought to be lowered. Present conditions are the result largely of disarrangements of direction, wages, and prices during the war. It is quite apparent that reductions will come very slowly and that it will probably take a long time for the railway rates to return to the same relative position which they held before the war. It is essential for us to know whether it will require more effort to perform the transportation services of the country in the future than it has in the past. Will transportation tend to take a greater or lesser part of the consumer's dollar?

The competition of truck routes in short hauls will reduce the business of the railways to a marked extent. A sufficient increase of long-distance business will serve as an offset to the loss of local business. The public may well consider whether it would be desirable to allow the railways' business to be reduced by truck competition.

A certain part of the costs of transportation is the return on the capital invested. There have been in the past some financing activities which were not in the best interest of the public, but rather in the interest of private gain. The public has without a doubt been carrying a great burden of over-capitalization. Return on this capital must be secured from the income. Such conditions will cause the rates to be higher than they would otherwise be. The importance of this is probably undeterminable.

Transportation costs are not apt to be reduced to any extent unless there come economies through truck transportation or a decided improvement in the methods of operating the railways.

CHAPTER VI

RISK AS A MARKET COST

It makes very little difference what sort of undertaking one may be engaged in; there is almost certain to be an element of risk attached to it. The farmer who sows the seed is incurring a risk. He does not know whether the season will be favorable and the result a bountiful crop. The production of crops depends upon various climatic conditions. When the crop is matured and success is assured from the standpoint of production, there still remain all the hazards of harvesting, and finally the risks of the market.

The farmer has two main types of risks to contend with: first, risks of production, which are greater than those in any other industry, for the farmer's production is dependent upon factors over which man has very little control; second, the risks which are adjuncts of the marketing process. It is this latter class of risks which will be dealt with here.

Risks occur in connection with the marketing process primarily because marketing takes time. Whenever the time element enters in, there is uncertainty. These market risks are of two types first, physical loss; and second, losses due to price changes.

Physical Loss of Produce. — Since goods cannot be passed immediately from the producer to the consumer, there is a possibility that they may be destroyed by fire, tornado, or flood. This is a type of risk which can be estimated with some degree of accuracy. Records are kept of losses by fire and tornado in different localities and in different kinds of buildings. A history of such losses is at hand, so that the "probability" of their occurrence can be estimated quite accurately. While the events of the past are not always indicative of what is going to happen in the future,

it has been found over a period of years, for the country at large, that losses from these causes can be estimated with a fair degree of accuracy. Whenever prediction can be made of what will happen for the country at large, the element of risk is, to that extent, removed. However, the risk element in the case of any particular unit of product is always present. As a result of the compilation of "experience tables," there is very little uncertainty about how many people of each age group will die each year; however, there is great uncertainty as to whether any particular individual will live throughout his expected life. The risk concerning the life of a large group of people is almost entirely eliminated, while that for the individual is always present.

Within certain limits, the same information concerning the extent of the loss of goods can be obtained. Whenever losses can be so nearly estimated, it is possible for them to be passed on to a professional risk-bearing agency — the insurance company — and the owner of the goods will not have to bear the full burden. The cost of such risk assumption will have to be borne by the owner of the goods and will naturally be included as a part of the cost of his services. The insurance company is a market agency which performs a distinct service, and the expense of such service is as essentially a part of the market cost as are the costs of storage and transportation. Because this type of risk can be approximately measured, its cost is reduced to a minimum and is not a very large item in the cost of marketing.

Loss Due to Deterioration. — This is an element of risk which has never been capable of exact measurement since so little is known about it. The realization of its importance is of recent origin. It is quite evident that where there is a loss of goods due to deterioration there must also be someone to bear the loss. Somewhere between the harvest field and the consumer's door, certain losses occur. Such losses are losses of economic goods. Economic goods cannot decrease without placing a burden of loss upon someone. Who

must bear this burden, and what is its effect on the price of the product, are pertinent market questions.

The farmer and the market agency cannot afford to bear the risk without assurance of a return sufficient to repay them for taking this risk. On some lots there will be very little loss. On others there will be a loss which will offset the gain made on other shipments. This loss must be met through a higher price from the consumer. As the market



FIG. 16. — Proper packing before shipment decreases market risks.

process is carried on from one step to another, there must be provision made for losses. The consumer protects himself by not contracting — as a usual thing — for the produce he needs until he desires it for immediate use. He will not ordinarily buy perishable goods and keep them until needed. The consumer will require the merchant to keep the goods until they are wanted for consumption, in order to avoid bearing the risks of deterioration. If the merchant is to bear this risk, he must charge for it. He can raise the price sufficiently to cover the risk, because the consumer knows that he is being served and is willing to pay the price. Furthermore, if the price were not sufficient to cover these risks, the merchant's operations would result in a loss and he

would, therefore, be forced out of business. There are many costs of business which the average merchant does not understand and cannot analyze; yet he is able to make prices which will cover these costs for his business in much the same way as is done by his competitors, and he follows approximately the same prices. It does not take long for prices to respond to changes in conditions and to make provision for these changes. If there are added risks which must be borne by any middleman, prices will respond to absorb these, else the middleman will go out of business. Soon the experience of the trade will reveal the necessity of a price adjustment. Ordinarily these adjustments will come from the side of the seller and will be effective only to the extent that the buyer gives evidence of his approval by purchasing at the new price.

Risks of deterioration are naturally greatest in the trade of perishable produce. Thus far, market studies have not been able to reveal to what extent these losses occur. This is a type of loss which is not measurable. The produce dealer himself does not know, with any degree of accuracy, just what his losses are or to what extent deterioration and waste must be taken into consideration as market costs. Some idea of the magnitude of these may be had from the experience of an express company, which paid out in one year for loss and damages something over \$5,000,000. This is an economic loss and must be borne by someone. The express company pays this bill, but must charge it against its receipts. These receipts are derived from the charges for transportation, which must be paid by the consumers of the goods.

Loss of produce due to deterioration which occurs in the wholesale and retail markets is an element of great significance. While there is no satisfactory way of determining the amount of this loss, all those who are familiar with market conditions realize that it is of great importance. This type of loss through deterioration is one which cannot

be measured and is therefore not insurable. An insurance company would merely be speculating if it were to insure this risk, and in so doing would have to charge a high rate. Since this risk is not determinable nor insurable, it must be borne by the market agencies, and the result is that provision must be made for it. This leads to a higher price. It is commonly assumed that this type of risk is not very important and that the real risks of marketing are those of changes in prices. Price changes are certainly of impor-



FIG. 17. — Milk properly handled arrives at the city market in good condition.

tance, yet the importance of perishability is one which will continue to attract more attention as time goes on. That the significance of this item is at least partially appreciated is shown by the fact that each year market men are attaching more importance to the factors of care in handling and packing produce. This will receive further consideration in the chapter on Care in Handling.

The Risks of Price Changes. — In so far as society at large is concerned, there is very little importance to be attached to loss caused by changes in price. This merely effects the return to the owner of the goods. Price changes do not influence the amount of physical goods in existence,

whereas waste and deterioration are factors which cause a decrease in the supply of economic goods. The latter are social losses. Losses due to price changes are individual losses and are of no real social consequence unless, because of them, production is not continued, and consumers are forced to do without the desired goods.

Goods are produced some time before they reach the consumer. Much of our production is seasonal and the market machinery must make these goods available throughout the year. Because of the duration of the market process, the elements of risk enters in. The value of produce to satisfy man's wants is the same at one time as it is at another, assuming the intensity of the desire to be the same. From this point of view, a bushel of wheat should be worth as much in May as it is in October. Man has not discovered a better way to measure the value of things than in terms of the universal measure of value — money. Price changes are therefore decreases or increases in value. Losses which thus occur must be borne by someone, as must losses of the physical goods. Values are measured in terms of money and price declines are the generally accepted evidence of losses.

Produce harvested at one season of the year and used throughout the year is apt to change in value from time to time. The value at the harvest time is primarily based on the estimated value at the time when the produce is needed by the consumer. Values of most farm products at local points are, therefore, based upon the estimates of those who deal in them. The price of wheat in September is, generally speaking, the price which the buyer thinks will prevail at a later time in the season less the expenses of holding it until that time. Since values are based upon man's estimates, they are subject to variation. It might be that the market price was determined without all the factors being taken into consideration. It might be that estimates of supply which were made were not correct, as later events proved. Demand for the product might not have been properly

gauged. Prices of the great basic products, then, are being gradually revised in the light of new facts concerning the vital market factors. These price changes bring with them risks. A very significant fact about markets is that one cannot secure the advantages of price increases unless he also assumes the risks of price reductions.

Methods of Dealing with Risks.¹ —

1. Elimination of risks.
2. Assumption of risks.
3. Transfer of risks to others.

Elimination of Market Risks. — Losses of goods by fire can be largely reduced by the construction of fireproof buildings and the practice of caution. The prevention of smoking and the use of extreme care in the handling of fire are precautions which reduce the fire hazard. Sprinkler systems and well-trained and equipped fire departments are doing much to reduce this type of loss. Losses by flood and tornado can be guarded against by the construction of strong buildings and proper drainage sewer systems.

Losses by deterioration of goods can be greatly reduced by giving more attention to the methods of handling. Fruits and vegetables properly pre-cooled, iced, graded, packed, and handled do not deteriorate as rapidly. Experiments conducted by Government and private agencies have brought us real information as to how things should be done to decrease losses by deterioration. While this work is still in its infancy, much has been done to reduce losses and make the handling of perishable products less risky.

The risks of price fluctuations can be reduced by a study of the extent and nature of the demand in different markets. By watching the flow of goods to the market, the serious loss due to "gluts" can be overcome. Goods must flow to a market in accordance with the demands of that market, if losses due to price fluctuations and deterioration are to be

¹ See Hardy's "Risk and Risk-Bearing," Chap. II.

kept at the minimum. Much can be done to reduce all these different types of losses involved in the market process; however, it is impossible to eliminate all of them. Those which remain must be borne by someone.

Assumption of Risks. — Some risks cannot be passed on but must be borne by the owner of the goods. This will apply particularly to risks due to deterioration. They cannot be passed on because they cannot be estimated — they are not insurable. There is not sufficient information at hand concerning the extent of loss due to deterioration of fresh fruits and vegetables to make insuring anything more than a gamble. The owner must bear this risk himself. The only means he has of freeing himself of this loss is to prevent its occurrence.

Some products are of such a nature that price reduction risks cannot be passed on unless there is a change of ownership. Perishable products are quite subject to price changes. If these changes occur, the holder of the product must bear the burden. In the long run, prices must be such as to make provision for these losses; therefore, perishable products will be higher in price, other things being equal, than non-perishables. This higher price is due to the risks of price fluctuation and not, as was mentioned above, to the loss caused by deterioration. The quantity of perishable products offered on the market cannot be so well regulated as that of non-perishables because the former cannot as readily be kept over from periods of heavy supply. Demand for perishables is more apt to fluctuate with weather changes than that for non-perishables.² These characteristics of the

² For example, shippers of watermelons to the New York City market estimated the quantity which would be demanded by the Fourth of July trade in 1922 and a certain number of cars were sent to that market. The weather, a factor which greatly influences demand for this product, was not favorable. There were heavy rains, the holiday crowds were not out, and the weather was too cool for a good consumer demand. The result was that the cars of melons which should have been unloaded and placed on the retail market could not be disposed of for more than a week. Great losses occurred. At least 20 per cent of the melons held over this period deteriorated to such an extent

perishable product, then, cause a more fluctuating price and therefore a greater risk.

Transfer of Risks to Others. — The insurance company is the professional risk-bearing agency which assumes risks of physical losses due to measurable causes such as fire or storm. Fire risk is the most important risk of this type, and the risk of loss on the great bulk of goods moving through the market is transferred to the fire insurance company in consideration of a premium paid.

Risks of Price Changes. — To the individual in the market, the most important type of risk is that of price changes. There are, as has already been mentioned, some price risks which cannot be passed on to others, but there has developed a particular type of market agency which affords an insurance to cover some such risks. This market agency is the Board of Trade, or Exchange. The principal type of transaction which affords this insurance is known as "Future Trading." The commodity which lends itself to this type of trading is one that embodies the following qualities:

1. It can be divided into rather distinct and definite grades.
2. It is non-perishable.
3. It is in general demand from year to year and not affected by fads or fashions.
4. It is demanded by large groups of people.
5. It is subject to rather frequent but not too violent price changes.

that they were dumped. The balance were of such poor quality — due to deterioration — that they were sold for less than freight charges. Such losses are due to factors over which man has no control. Had the weather been favorable these melons might have sold for a good price and all have gone into consumption. These losses must be made up on other shipments which come into the market, as the dealer cannot stand them and continue in business. Such risks must always be kept in mind, and the memory of such losses must act as a justification of enormous profits which might be exacted in cases of shortage.

6. It is a commodity of which there is usually a large supply.
7. It is of such a character that price changes will occur, or there will be no risk involved and therefore no necessity for the trading.
8. It is such as to involve very little danger of the deterioration of the product.

The great agricultural staples meet these requirements and are the products which are most extensively dealt with on the exchanges.

There has always been criticism of the practice of dealing in products on the Exchange, and especially of future trading. The practice has been defended and condemned. It is not purposed here to enter into a lengthy discussion of these operations, but rather to mention only the essential characteristics of the practice and show how it is used to shift risks.

Hedging. — Much of modern business is transacted on the basis of contract for delivery at some time in the future. Clothing is sold in the fall and winter for spring delivery. Most products made to order are contracted for before the manufacturer has the raw material in stock. Flour is sold for delivery sometimes months ahead. The longer the time between the placing of contracts and the actual delivery of goods, the greater the opportunity for risks to enter in. It is socially advantageous that contracts be placed as far ahead as possible as this will permit a better regulation of industry and less fluctuation in employment. One of the greatest evils of the present economic society is that of fluctuation of industry, or what is called the "cyclical movement of business." Long-time contracts which can be carried to completion are factors which will tend to eliminate such movements. In order to protect himself against risk, the enterpriser, upon securing a contract, must purchase his raw materials and contract for his labor. Such practices

are common in industry and are the common precautions of wise business men. When such precautions against risks are not taken, there is the possibility that the contractor will suffer losses and thereby become financially unable to complete the job he has agreed to do. It is to the interest to all concerned that such risks be reduced to the minimum or be passed to someone who can assume them.

Some agricultural products, because of their nature and adaptability to grades, are quite extensively dealt in for future delivery. The process of buying for future delivery to eliminate a risk is called "hedging." The cotton mill might sell goods for delivery within three months. The raw cotton might not be on hand with which to make up this bill of goods. In order to make an equitable price, the seller must be able to sell his goods and buy his raw material on the same basis. If delivery is to be made on May 1, an equitable price would be that for the raw material on that date together with the proper cost of manufacture. Because of the lapse of time there is the probability that the price of the raw cotton will not be the same at the delivery date as at the date of contract. In order that there may be this harmony between the price of raw material and finished product, the manufacturer will go into the market and buy cotton for delivery on May 1, and make his price on this basis. If he did not do this, and if the price of cotton went up, the price at which he sold the finished cloth would be too low and he would, therefore, sustain a loss. By reason of his future purchase of the raw cotton, a gain would be made in the same amount as the loss sustained on the contract. The only loss which the manufacturer incurs is that of brokerage on the future purchase. This is similar to a premium charge for insurance. Because of the ability of the manufacturer to secure such a form of insurance his operations are not of a speculative nature. His profits are those of manufacturing. Stability of industry will come when the business man becomes less of a speculator and more of a

trader. Profits of business must become more in the nature of payment for services and less of a reward for risks. The less risk, the lower the margins. Fewer risks mean lower prices.

Any legitimate practice which decreases risks and makes for stability of industrial conditions is to be commended. Hedging is a practice which does this.

CHAPTER VII

SELLING

Goods have no value in use unless they are in the hands or possession of someone who can use them. All of the processes of producing raw materials, fashioning these into myriad forms, transporting, storing, and selling are for the primary purpose of getting goods to the right place, at the right time, in the proper form, and in the hands of someone who can make use of them. It matters not that trade has become so intricate that goods are now "made for the market" instead of being made for the consumer, or that sales are made primarily with the thought of making profits rather than of rendering service. The stream of commerce flows on to the ocean of consumers which is the ultimate end and goal of all business activities. It is small wonder that we have not yet grasped the problems of the market in a clear and concise way, as the development of this institution in its modern form has been so recent and sudden and the institution itself is so complex and bewildering. Man has not yet realized just what has happened in the change of industrial methods.

All the way through this maze of markets and market processes, selling takes place. At first hand it appears that selling constitutes the whole of the market process. Markets are thought of as places where goods are bought and sold, but they are more than mere selling marts. The market processes are something more than the mere transfer of title of goods. On the other hand, the field of marketing is sometimes discussed without any regard whatever for the processes of selling. This is probably due to the fact that we know so little about these processes. We know quite well what a sale is, and how it is made, and some claim to know the essentials of salesmanship; yet when we come to



FIG 18 — A producers' retail market where sales are made direct to the consumer (Courtesy Municipal Bureau of Markets, Detroit Michigan)

deal with the problem of marketing as a whole, we find rather scanty information on selling. Books on salesmanship give what is called an analysis of the sale and divide it into its component parts. The economics of the sale, however, have not been adequately portrayed.

It is by sale that goods are put into the possession of those who have the right to use them. During the various industrial and commercial processes, title to goods is passed from one to another. Because of the uncertainties of some productive processes and the risks which go hand in hand with almost all commercial or industrial activities, it is quite essential that possession of goods and title to them go side by side. Since industry has become so specialized and so many various processes are performed, both manufacturing and marketing, it is quite natural that most goods pass through the hands of many different persons. This increase in the complexity of industry calls for a greater number of transfers of title. When the farmer took his wheat to the mill and had it ground into flour, there was no necessity for the transfer of title or of the making of a sale. Now, in accordance with the practice of the trade, the wheat is sold to the specialized wheat buyer who sells it to the miller. The flour is sold to the flour merchant who sells it to the baker. The bread is sold to the retailer and finally to the consumer. With the increase in industrial complexity and the separation of the producing and consuming regions, there is of necessity more selling.

It may be said, then, that selling is the process by which a certain utility is created — possession utility.¹ Conditions must be such that goods can enter into consumption and satisfy wants. Unless the consumer has possession of goods, consumption cannot result. It is just as essential that goods be in the hands of the one who desires them as it is that they be in the proper place, in the desired form, or available at the time desired.

¹ What Carver calls, "personal utility."

For complete production, it is necessary to go through all the processes which will make the goods available for the satisfaction of wants. It is, in our modern economic system, a long way from the hands of those who produce the raw material, or put it into the proper form, to the hands of those who desire to consume it. Under the older systems of economic activity, a great majority of goods passed directly from the so-called producer to the consumer. This practice has been called direct marketing for the reason that there were not intervening agencies between the producer and the consumer. The complexities of modern economic life have made it almost impossible to follow this type of market procedure, except in cases of a few kinds of products grown and sold locally. Consumers in congested centers must get their food from great distances. As these distances have increased and as the congestion of cities has made it more difficult to transport goods, this problem of moving products from one to another has consequently become greater.

A steer is raised and fattened in Iowa. Production is complete, according to the reasoning of many. However, a steer in Iowa is quite a different thing from a sirloin steak in New York City. An excess of egg production occurs in the great Middle West of the United States on almost numberless farms. These eggs are in the hands of, and owned by, millions of farmers. Before the productive processes are completed this ownership must be transferred to millions of consumers. It is no small matter to bring the seller and buyer together under such conditions. Modern economic procedure makes it impossible for them actually to be brought together and to deal directly with one another.

The age of specialization brought with it the practice of turning many of the things which we once did over to some other person or agency. The weaving and making of clothing were duties once performed by the womenfolk of the household. Bread-making was as much a part of housekeeping

as sweeping the floor. These tasks have been taken over by other agencies and have become commercialized. In cities we find that many other home duties are taken over by commercial concerns. The delicatessen shop is the kitchen for many a household. Modern man is a specialist and calls in others to do things for him. Formerly, man labored to satisfy his wants; to-day man labors to secure the means with which to buy the things he desires.

At the other end of the productive process we find it just as true, if not more so, that each individual is concentrating his efforts on one thing. The farmer was formerly the grower and marketer of produce. Now he devotes his time to growing, and others are called in to take care of the marketing or selling, side of his business. There are many reasons why this procedure is now followed. The great distance between producing and consuming centers, coupled with the advantages of specialization, stand out as primary reasons for the present procedure. Goods now have to travel a long distance in order to arrive at the place where they are desired. It is more economical for goods to be handled in large quantities. The average producer does not have sufficient quantity to make it practicable for him to market his products directly for himself. Modern markets have become so complex that, for success to result, the marketer must be well versed in all the factors which enter therein. This is a large task and it is not possible for the individual to take the time and make the effort necessary to secure this information.

Anyone can sell goods if he knows who wants to buy them and how connection can be made in order that a sale may result. A farmer in Kansas has eggs for sale. A laborer in Syracuse wants to buy eggs for breakfast. These two must be brought together so that a sale will result and settlement be made. It is, of course, absurd to think that such a procedure is economically possible. Market machinery has grown up for the primary purpose of making it

possible for the farmer to sell his eggs and the laborer to buy what he desires. Merchants are in the market for the purpose of finding someone who wants to buy what others have to sell, and to locate goods which the consumer desires. The "middleman" searches the world for goods to satisfy the demands of consumers, and searches for those who desire to buy the goods which have been produced. It is the service of bringing the man who wants to buy and the one who wants to sell into contact which is performed by the selling agency. It must also be remembered that most sellers perform other services besides that of selling, which is being dealt with here. There are sales made all along the line by the agency which stores goods, changes their form and in some instances transports them. As a general rule, ownership of goods changes with every market process which involves the transfer of possession, except in the case of transportation. The transporter of goods is not a dealer but rather an agency which performs other services.

With the development of industry and commerce, there have come changes in sales methods. Modern sales methods are now spoken of as something entirely different from the methods employed in former days. These modern methods are the result of changes in our commercial system. In selling, we have been merely trying to keep pace with the changes in other lines. Selling includes more to-day than it did in the days of the self-sufficing community. The person who had a surplus formerly made a sale by displaying his wares before someone who wanted to buy and then making an agreement as to the price and terms of sale. The prevailing method was what we now call "direct marketing". Those who desired to buy went in search of the goods wanted, or those desiring to sell went in search of a buyer. In most instances, the goods were before the parties to the deal, and direct bargaining took place.

Analysis of the Sale. — Modern means of communication and travel and the pressure of time make it necessary

that things be done more rapidly than before. Man does not have time to search the various markets for the things he desires. He wants to know where he can secure a certain thing, and then, by wire, post, or representative, to arrange the terms of sale. Time is too valuable to permit him to go blindly into the markets of the world searching for things. Because of man's desires and the facilities which we have for the conduct of business, the sale has taken on a new aspect and may be analyzed as follows:

1. Advice to buyer as to kind and quality of goods and place where they can be secured.
2. Creation of effective desire.
3. Determination of the price.
4. Determination of terms on which sale is to be made.

1. *Advice to Buyer.* The buyer may be advised concerning goods in one of two ways: (1) direct; (2) indirect. The direct method of advising is by displaying goods before the consumer by either taking them to his home or showing them in the shop of the dealer. The art of displaying goods, of window dressing, and of advising the public of different goods on the market has developed to a remarkable extent within the past few years. New goods are made, and unless the public is advised of them they will never be put into use. Older types of goods, with which the public is familiar, will never go into consumption unless the consumer knows where they can be found. One of the greatest services which the dealer in merchandise can render the consumer is to advise him concerning the goods which are available on the market. This service is of vast importance and is just as essential as that of holding the goods in storage or changing their form or transporting them. By indirect contact, or advertising, the public is advised of many new goods and the places where all goods can be purchased. Advertising has become a tremendous force within the last two or three decades. It is a force which is constantly working. The

bill-board on the roadside or the vacant lot tells us of goods we should have; the cards in the street car tell of goods we need to make our life more complete. The morning paper, the magazine, the theatre program, the electric sign at night and the painted sign by day tell us constantly of things which the markets of the world provide for the satisfaction of our wants. The great development of business and the drive for profits are forces which have made advertising imperative to him who would continue in business. He who advertises succeeds; he who does not advertise is advertised by the sheriff. It is not purposed here to write a brief for or against advertising as it is now conducted in this modern commercial world of ours; however, the impelling force of it and the universality of it must be recognized.

Advertising might be classed as either educational or acquisitive. Educational advertising advises the public of new goods, what they are for and where they can be secured. Acquisitive advertising merely turns the stream of buyers from one store to another. Advertising is a great force to maintain equality and justice in prices. If it were not for advertising, there would be a great tendency for prices to vary to the disadvantage of the consumer. Advertising costs money and it must be paid for in the long run by the consumer. Whether this cost is excessive and results in a payment greater than the return received is a question which no one can as yet definitely answer. It appears that there is a great amount of advertising waste and therefore an extra burden upon society.

2. *Creation of Effective Desire.* Display of goods, printed advertising, demonstrations and similar practices are carried on by the seller of goods for the main purpose of making people buy goods. The reason for making people buy goods is to increase profits. All the various methods of making the public want goods and agree to take them are parts of salesmanship. Make people want things intensely enough to give up things of value for them, and de-

mand is created. Advertising is carried on for the purpose of creating demand, or bringing forth demand. This is a service which is of value to the consumer and is to be encouraged, provided that the demand is for goods which will be beneficial to the consumer. There is to-day in commerce the practice of following quite aggressive selling methods. Some people object very strenuously to these aggressive methods and look forward to the time when the consumer will be permitted to make his choice without pressure.

It is sometimes argued that aggressive selling methods, such as sales campaigns, national advertising, and persistent efforts on the part of salesmen, cause the consumer to buy things he does not want or would not otherwise buy. These aggressive methods should be stopped. Advertising should be discontinued, traveling salesmen taken off the road, and the retailer and consumers allowed to order just what they want.

No one denies that under such circumstances sales would decrease and the consumer would buy less. The purchasing power of a great part of our population would no doubt decrease. The mass of the people would be satisfied with less. The question is whether the mass of the people would go on producing at the present rate and save the difference, or whether they would not cease to be so active since their wants were not so many. Is it not the spur given us by aggressive methods of salesmanship and the continual display of automobiles, better houses, clothes, better art, and furnishings in the advertising columns which causes us to be more active and produce more? Without a doubt, it is the increase in the number and quality of our wants, due to aggressive sales methods, which has caused us to develop to the high state of industrialism, education, and art we have attained. If it were not for the spur which has been given us, we should still be content to write our letters with the quill pen, send our messages by courier, get the news from a weekly paper, read by candle light, wear denim, and

ride in a "shay." The aggressiveness of salesmen and the pull of advertising has made us aware of the better things of life and has caused us to exert ourselves to get them.

3. *Determination of the Price.* This is the great essential element of the sale. Demand cannot result unless the price is taken into consideration. Consideration of price is one thing which will tell whether demand really exists or not. If the price asked is higher than the price the buyer is willing to pay, there will be no demand resulting. The tendency of the times is toward saving of time wherever possible in the transaction of business. Time was when bargaining over the price to be paid was the most essential part of the sale, but prices are no longer made in that manner. Prices are asked and the consumer accepts or rejects. It cannot be said that the merchant sets the price. A price is merely asked. If the shopper buys, there is an agreement to the price asked. If no sale is made at the price asked, then the merchant must readjust prices in order that demand may result. There is still bargaining in the market, but not the kind of bargaining — which was merely haggling — that was formerly common.

The factors and forces which cause a certain price to be asked and accepted are the real factors and forces of the market. Price is the result of the workings of the market.

4. *Terms of the Sale.* The most important item concerning the terms of the sale is that of the manner and time of payment. There has been a tendency in markets for payment to be made in cash. This is more particularly true of the retail trade. While it is quite generally accepted that the cash basis is the one which would be the best for all concerned, there are many instances when it cannot be strictly followed. As the cash system becomes more prevalent, the function of the sale will become less important, or there will be less for the sales transaction to effect. With the decrease in the extension of credit, there will be a decrease in the serv-

ice the merchant provides and therefore naturally a decrease in the cost of performing the service.

Delivery service is also rendered. With many types of goods, this service is being discontinued. There will continue to be the necessity of delivery for many goods, as their bulk makes it impossible for the buyer to perform this service himself. Extension of credit and delivery service are matters which are dealt with in the sale contract; yet they are not sales services, strictly speaking. Extension of credit is a financing service which is provided by the seller of the goods, and delivery is a transportation service which he renders.

Bases of Sales. — Before markets were developed as they are to-day and communication made easy, the sale was made by seller and buyer coming together and bargaining. The goods were before them, so that inspection could be made. This involved the presence of the buyer whenever a purchase was made. The goods were inspected and evaluated by the buyer. This was necessary as there was no means whereby quality could be learned except by inspection. This type of sale is called sale by inspection or sale in bulk.

In some cases a sample of goods was sent to prospective buyers for their inspection. The sale was effected on the basis of this sample, which was assumed to be representative of the whole lot of goods. This was a step forward in effecting economy in selling. It saved time for the seller as well as for the buyer. It was not until the ethics of business were somewhat developed that the practice of sale by sample became possible. Unless the integrity of the seller can be depended upon, sales by sample cannot be made. The sample must be honestly taken and be representative of the whole quantity of goods offered. Sale by sample is the basis on which many traveling salesmen conduct their business. Samples of their lines of goods are carried along with them and shown to merchants. The house-to-house canvasser also carries samples. Purchases are made on the basis of

these samples, and special orders for produce are taken, in many instances, on the sample basis. This type of sale differs from sale by inspection, or sale in bulk, in that a small quantity of the produce is inspected instead of the entire lot. Sale by sample made it possible to decrease selling costs.

The third basis of sale is that of description. Description may be made by any means which enable the seller to convey to the prospective buyer a conception of the kind and quality of goods he has for sale. As in the case of sale by sample, sales by description cannot be made unless the buyer has faith in the integrity of the seller. The establishment of grades has enabled sales to be made with less expense than was formerly possible. The mere mention of a grade will convey to the mind of the buyer the quality of the product being offered. Such a procedure saves time and permits the transaction of business between persons in widely separated markets. With the improvement in grading, a general dissemination of information concerning the meaning of the grades, and the establishment of more ethical commercial practices, will come a decrease in the cost of selling.

Practices are being introduced in the commercial world to make possible a transfer of title to goods with less expense. The great struggle to get business has made it imperative that the business man use every feasible method to reduce costs. It is estimated that it costs more to sell goods than to make them. Costs are very high and every element which tends to increase this cost should be modified or eliminated if possible. The practices employed in the market of the world should be studied in a scientific manner, just as those of production have been. Useless effort, wasteful practices, and duplication should be reduced to the minimum to the end that man's activities may result in a greater quantity of want-satisfying utilities.

CHAPTER VIII

FINANCING AGRICULTURAL MARKETING

The productive processes bring forth goods which can be utilized in the satisfaction of wants. Efforts expended in production are paid for by the consumer of the goods. In primitive times, when a man wanted a particular thing to satisfy an immediate want, he made it. There was very little production — or the securing of things — until the desire was present. In self-sufficing communities the consumer made things for the satisfaction of his own desires. Under such a system there was very little need of producing ahead of time, and very few stocks of goods were placed aside for future consumption. Man was able to utilize, almost immediately, the results of his efforts. There was none of what the economist calls “waiting”; the desire for a thing developed, action brought forth the thing needed to satisfy that desire, and consumption followed.

Fixed habitations in regions where there are seasons and the specialization of industry have made it necessary that time elapse between production and consumption. The development of our modern industrial civilization has imposed a new burden upon man — that of waiting. Production in many instances takes place a long time before the thing produced actually satisfies a want. Wheat coming from the threshing machine spout may not enter into consumption for a year or more. Apples of the September harvest may remain in storage until the following June or July before they are finally sold by the fruit peddler to the passer-by. Cotton is produced a long time before it is finally made into garments. It is very probable that in some cases several years elapse between the time the cotton comes from the field and the time it finally reaches the consumer. Butter,

eggs, meats, potatoes, corn, and all other farm products, with the exception of the very perishable products like whole milk and the soft fruits, are produced quite a long time before they are finally used by the consumer.

The money with which the producer of goods is paid comes from the consumer. The consumer, however, does not pay the bill until he buys these products; in some cases not until a long time afterwards. There is a period of waiting, then, between the time the goods are produced and the final payment for them by the consumer. Someone must wait for payment. Because of the complexity of modern business, it is not feasible for the producer of goods to wait for his money until the consumer pays for these goods. The practice which has grown up in industry is to transfer this task of waiting to some other agency whenever title to goods passes. The farmer receives his pay from the local buyer when the sale is made. The local buyer is paid by the wholesaler, the wholesaler by the retailer, the retailer by the consumer. In such a manner waiting is done by all these market agencies.

Transactions in business are so numerous and involve to such great sums of money, in total, that very few dealers have sufficient funds on hand to make these payments. At the time of wheat harvest, the local grain buyer needs a large amount of cash to pay for his purchases. He usually does not have this. He secures it from other sources; that is, he borrows money, or he transfers the task of waiting to some other person, the money lender. Marketing of produce is financed, to a certain extent, by all the different agencies. However, at certain times of the year the task is too great to be handled by those in the trade. Farmers, local buyers, wholesalers, manufacturers, jobbers, and retailers need credit in order to carry on their marketing to the best advantage.

Many farm products are sold, as soon as harvested, to a local buyer who pays cash. The problem of market finance

so far as the farmer is concerned, no longer exists. He has produced his crop, sold it, and received the money return. A great portion of farm produce is sold in this manner. There is a tendency now for the farmer to hold his product for a more favorable market or to sell it on a coöperative basis. The method of sale to local buyers immediately after harvest time has been considered the one great weakness of



FIG. 19. — The journey from the local country elevator to the city consumer is a long one. Someone must finance this operation.

our agricultural market system. Lower prices have been the result of this method of sale. However, farmers should realize that the lower price at harvest time is due, to a certain extent, to the fact that the tasks of risk-assumption and financing have been passed on to someone else.

One of the reasons given for the dumping of farm produce on the market at harvest time is that the farmer needs the money. The impossibility of his securing credit to permit him to hold his product has been one of the reasons why

early sales have been made. If there is to be more orderly marketing, it is necessary, therefore, that the farmer be enabled to secure credit on reasonable terms and conditions.

If the product is sold to some dealer in another city or at a central market, it is necessary for the farmer to wait until returns on his shipment can be made. This necessitates a delay of some days in many instances. The farmer feels that he does not want to wait. To the average farmer the loss through a lower price which he receives at the local shipping point is more than offset by immediate payment. Likewise, the higher price which will normally result from holding the product until later on in the year does not justify the expense of holding the product and the delay in securing the money return.

If it were not for the problem of credit, then, the farmer would have greater freedom in the selection of his market as to time and place. For example, if it were not for the immediate need of money the farmer might sell his livestock to better advantage in Chicago than in the local market; or, he could wait until March or April to sell his potatoes instead of selling them in October. Lack of credit restricts the choice of a market.

How Agricultural Marketing is Financed. — (1). Agricultural marketing is financed by the local buyer who pays cash for the produce when it is delivered to him at the country station. From the standpoint of the farmer, this is the simplest and most convenient method, other things being equal. The movement of the product from the local buyer's hands on through the market channel is facilitated by credit extended by wholesalers, manufacturers, and banks. As far as the farmer is concerned, the credit problem is ended when he receives his money.

(2). When a shipper sells to a dealer in another market, he may receive payment immediately for his product by drawing a draft on the consignee. This draft is deposited in the bank and funds are usually immediately available. The

bill of lading for the shipment is attached to the draft and sent by the shipper's bank to that of the consignee. Upon payment of the draft, the buyer receives the bill of lading and possession of the produce.

In many kinds of business, this is a very satisfactory method of financing the country shipper, whether he be farmer or dealer. Its success depends upon the integrity of the shipper. A city buyer will not agree to pay the draft of a shipper unless he is known to be responsible and honest. One reason why more farmers cannot sell in the central market and draw drafts on buyers is that they have not the reputation which will make such a practice safe. One of the things necessary to permit farmers to sell in this manner is the establishment of their reputation for integrity and financial responsibility.

(3). The country shipper, or farmer, might borrow money to meet his needs while he is waiting for his return from a distant market or for a more favorable time to sell. The local bank is usually the agency which loans money to the farmer under such conditions. If the credit demands of the community are greater than local banks can meet, they may secure additional funds by discounting their notes with the Federal Reserve Bank. Under ordinary conditions, ample funds are available to finance the movement of crops. Funds are not available from banking sources as a general rule, for the holding of crops over a long period of time in anticipation of a better market. One of the serious criticisms of farmers against our credit machinery is that credit could not be obtained in sufficient quantities to permit the holding of agricultural produce off the market during the depression of 1920-21. It is very uncertain just what would have been the result had the 1920-21 credit demands of farmers been met.

Amount of Credit Extended to Agriculture. — It is very difficult to estimate the amount of credit extended to farmers. In 1920, the mortgage debt on "owner-operated"

farms in the United States amounted to approximately \$4,000,000,000,¹ an amount which is approximately 29.1 per cent of the estimated value of farm lands carrying mortgages. The total mortgage debt for all farm property in the United States probably exceeds 8 billion dollars.² The amount of personal and collateral loans to farmers (by banks) on December 31, 1920, has been estimated at \$3,869,-891,415.³ In addition to these loans (mortgage and short-time bank collateral and personal loans), there is a great amount of credit extended to farmers by local retail stores, grocers, implement dealers, dry-goods dealers, seed houses, and private money lenders. It is impossible to make an estimate of the total of this kind of credit. Store credit, without a doubt, amounts to a considerable sum, especially in those sections of the country where the one-crop system of agriculture prevails. The extending of large amounts of store credit is quite common in the cotton-growing sections of the United States.

In trade and industry, the amounts owing for money borrowed and credit extended are offset to a certain extent by accounts receivable. This is not the case in agriculture, for the average farmer very seldom has a large amount of money owing him. Thus the amount of money loaned and credit extended to farmers represents very nearly the net amount of their total indebtedness.

Comparison of Commercial and Agricultural Finance. — The great difference between financing of commerce and of agriculture is the length of time for which credit is needed. Most manufacturing industries can turn their raw materials and labor into a product ready for sale within a short period of time. The trader buys his stock of goods and makes as many "turns" a year as possible. Since the development of rapid transportation and modern trade practices, the

¹ U. S. Fourteenth Census, Vol. 6, Part 1, p. 47.

² U. S. D. A. Bulletin No. 1048.

³ Report of the Joint Commission of Agricultural Inquiry, Part 2, p. 97.

ordinary retailer can secure a supply of goods within a very short time, sometimes within an hour or so. There is no longer the necessity for keeping large stocks of goods on hand. The shorter the time between the purchase of goods and their sale, the less the risk attached to trade. Ease of getting a new supply of goods and a rapid turnover makes it possible for the dealer to conduct his business with a smaller amount of capital. The quick turning of goods into money enables the quick payment of bills and loans.

The farmer's turnover is not so rapid. The wheat, corn, cotton, and tobacco farmers must wait almost a year from the time they plant their crops until sale can be made. The fruit grower has a yearly crop, but he must wait several years before his trees come into bearing and provide produce for sale. In almost every kind of agriculture, except dairying and poultry, the money comes in seasonally. The time which elapses between the need for credit and the obtaining of the money with which to pay off the loan is longer than in most other industries.

It is true that in some sections of the country the farm might be so managed that there would be a steady income throughout the year. The fact remains, however, that very few farms are so conducted; therefore, the necessity for longer credit terms. With the extension of specialized agriculture and the dependence upon one principal product, it is quite unlikely that short-time credit will meet the requirements of agriculture for some time to come.

Banking has developed primarily to finance industry and commerce and has been built up on the basis of short-time credit because it met the needs of the customers it was serving. With the development of commercialized agriculture and the need for funds, financing machinery was not adjusted to meet these new requirements. Agriculture has, of necessity, been compelled to adjust itself to the financial machinery instead of the machinery being adjusted to take care of agriculture. This condition has continued because

industry and commerce still contribute the bulk of the business. However, if the financing of agriculture should become the greatest task of banks, then banking practices would change to meet these needs more nearly. The Agricultural Credits Act of March 4, 1923, modified banking regulations so as to provide longer-time credit to agriculture. This amending act was for the purpose of giving to agriculture the type of credit facilities which the nature of the business demanded. The term of certain re-discounts was lengthened and some new types of paper were made eligible for discount. Whether these changes in the law will result in the relief sought for is still uncertain.

Unsecured Loans. — A great deal of credit is extended without any security being given. Most store credit is of this type. Credit is extended upon reputation for honesty and prompt payment of bills when due. Farmers receive a vast amount of this kind of credit.

Note Without Indorsement. — Country banks loan much money to farmers on their personal notes and require no indorsement. Merchants in some localities follow the practice of converting accounts receivable into notes without indorsement. This type of credit is really based upon the honesty of the borrower.

Indorsement by Other Parties. — In order to improve the quality of the paper, banks often require indorsement by other parties. However, loans of this type are of the same general character as those made without indorsement. They are personal or character loans.

Secured Loans. — Farmers' loans are secured as follows:

1. Mortgage on livestock.
2. Crop lien.
3. Warehouse receipt.
4. Stocks and bonds.
5. Other ways.⁴

⁴ See U. S. D. A. Bulletin No. 1048.

The livestock mortgage is the most important type of security given by farmers. In the livestock and grain-growing states this collateral is of great importance. Livestock loans make up a large share of the business of banks in those states where there is much feeding done. This type of mortgage is also of importance in those sections of the country where few loans are made without security. Conservative loans based on livestock are generally sound.

Crop Lien. — In the cotton and some grain states, the crop lien is a common type of security. A loan secured by a growing crop of one of the staples is a safe security, especially in a section of the country where crops are rather sure and there are good farmers. In those communities where farmers are rather shiftless and there is a great annual movement of tenants to different farms or communities, bankers are compelled to keep a rather close watch on the progress of the crop. If the only means with which a note may be paid off is the return from a growing crop, it is necessary that the banker protect his interests by seeing that a good crop results and that the returns from this crop be applied to the note. This condition is very bad in some sections of the country and makes for a type of agriculture and citizenship that is altogether undesirable.

Warehouse Receipt. — If the farmer is to market his produce in an "orderly" manner, he must be able to secure funds to finance the holding. Many farmers can borrow money on their personal notes if the banker knows they have their wheat, for example, in the bin at home, and want to hold it for a more favorable market. However, this type of loan is not the most desirable. Goods in a bonded warehouse are good security for a loan. When cotton, for example, is placed in a warehouse and a receipt is issued, the farmer may take this warehouse receipt to the bank and use it as security for a loan. This is a good type of security because the banker knows that the owner of the cotton will not sell it without his knowledge. The cotton could not be

taken from the warehouse without the receipt. The banker holds the receipt until the note is paid. Virtually, then, the banker has possession of the cotton. Furthermore, cotton in a warehouse is fully protected from weather damage and fire. Farm produce warehouse receipts are good security for loans and their use should be encouraged.

Stocks and Bonds. — Farmers in the United States as a whole have not reached the point where they invest in stocks and bonds to any great extent. Purchases of Government bonds during the war were made in large quantities; however, it is no doubt true that most of these have passed out of the hands of the farmers long ago. This absence of investment outside of their own business is of great significance. When agriculture slumps, the average farmer has no other income to tide him over, as all his wealth is tied up in his own enterprise.

In the New England States, practically all of the secured loans to farmers have stocks or bonds back of them. All other types of security in this section of the country are negligible. In other sections of the country, this kind of security is of minor importance, exceeding only warehouse receipts as a whole for the country. Farmers of the West Central States use stocks and bonds as collateral less than those of any other section.

Improvement of Agricultural Credit. — If agriculture is to prosper and expand in accordance with world demand for its products, it must be properly financed. This does not imply that financing should be on such a basis that it will be easy for any farmer to borrow any amount of money. The financial machinery of our country must be such as to meet the needs of agriculture. There has been much criticism of what was called the "deflation of credit," and the restriction of loans during the depression of 1920-21. Farmers wanted more money to hold their crops. Many of those who were trying to *save* the farmer during this period of depression devised numerous schemes for additional agricul-

FORM OF SECURITY GIVEN FOR PERSONAL AND COLLATERAL BANK
LOANS TO FARMERS*

Geographic Division	Personal loans			Per Cent of Loans Secured by					
	Note without in dorment	Note with one or more in dorments	Total	Mortgage given in live-stock	Crop lien	Ware-house Receipt	Stocks and Bonds	Other ways	Total
United States	36.0	32.0	68.0	18.3	6.2	1.4	4.2	1.9	32.0
New England	15.7	62.6	78.3	1.7	....	.3	18.1	1.6	21.7
Middle Atlantic.....	19.8	67.6	87.4	1.0	.. .	.2	9.1	2.3	12.6
East North Central ..	46.8	43.9	90.7	3.3	.3	.1	4.7	.9	9.3
West North Central.....	47.6	17.3	64.9	25.0	5.7	.6	1.8	2.0	35.1
South Atlantic.....	11.4	57.6	69.0	9.2	7.3	5.8	5.8	2.9	31.0
East South Central.....	15.9	45.9	61.8	14.1	10.4	4.0	6.4	3.3	38.2
West South Central.....	18.5	20.9	39.4	38.6	17.7	1.5	1.7	1.1	60.6
Mountain.....	27.9	12.2	40.1	39.6	12.1	1.4	3.5	3.3	59.9
Pacific.....	49.0	13.2	62.2	15.0	8.3	4.5	7.8	2.2	37.8

* Adapted from U. S. D. A., Bulletin No. 1048, Table 6, p. 21.

TABLE SHOWING KIND OF SECURITY BACK OF "SECURED LOANS" IN THE
DIFFERENT SECTIONS OF THE UNITED STATES*

Geographic Division	Percentage by				
	Mortgage given on livestock	Crop lien	Ware-house Receipt	Stocks and Bonds	Other ways
United States	57.2	19.4	4.4	13.1	5.9
New England	7.8	....	1.4	83.4	7.4
Middle Atlantic	8.0	....	1.6	72.2	18.2
East North Central	35.5	3.2	1.1	50.5	9.7
West North Central.....	71.2	16.2	1.7	5.1	5.8
South Atlantic.....	29.7	23.6	18.7	18.7	9.3
East South Central	36.9	27.2	10.5	16.7	8.7
West South Central	63.7	29.2	2.5	2.8	1.8
Mountain	66.1	20.2	2.4	5.8	5.5
Pacific.....	39.7	22.0	11.9	20.6	5.8

* Adapted from U. S. D. A., Bulletin No. 1048, Table 6, p. 21.

tural credit. It is quite probable that the bad condition in which many farmers found themselves was due to too much credit rather than not enough. A credit policy is needed which will not restrict needed agricultural development nor permit an over-expansion.

Credit conditions are not good at the present time. Agriculture is, in many instances, handicapped in securing the needed funds. Improvement will come partly through legislation and partly through changes in practices of agricultural production and marketing. The farmer can do many things to improve his credit and make it easier to borrow money needed for the conduct of his business. Anything which decreases the amount of risk attached to a loan will make borrowing easier and terms more favorable.

Better Storage. — Agricultural produce is a good form of security for loans. The better the produce, the better it is for security. Cotton exposed to weather and fire hazards is not as good security as cotton in a good warehouse protected by insurance. Wheat in the farmer's bin has value and is good security for a loan at the country bank. All the different kinds of farm produce are of value. The possession of farm products is an aid when asking for credit. However, produce on the farm or stored in places unprotected from weather, fire, or theft, is not real security for bankable loans. Local bankers will make loans to farmers who have such property, but these loans are more in the nature of character loans. The farmer needs to have his notes of such a character that they will be acceptable in the money markets of the world. Character loans are restricted in market scope. They must be handled by those who know the maker, or by someone who knows someone who will vouch for the maker. The market for farmers' paper will be widened when it is backed by more dependable security. The warehouse receipt is dependable collateral. Its use should be encouraged, as it facilitates financing and necessarily calls for better storage conditions. Of the value

of the warehouse receipt in financing, the United States Department of Agriculture says:

“ A well-organized system of cotton warehouses would be of the greatest assistance to the farmer, the supply merchant, and the local banker in financing the cotton crop, especially in tiding over an emergency. There is a serious need for warehouses whose receipts would be acceptable as an absolute guarantee that a certain amount of cotton of a definite grade and in marketable condition had been stored with the warehouse company. Under such conditions it would be very easy for the farmer to store his cotton and offer the receipts to his supply merchant as collateral for extending the time in which his account must be paid. The merchant in turn could surrender these receipts to the local banker and extend the time of his loan. The local banker would then use these receipts in a similar way to extend the time of his loan with the larger institution. In practically every instance the large banker would be glad to extend the time of payment when these receipts were offered as collateral. In many instances the rate of interest would be greatly reduced. This is one of the very important functions of an efficient system of warehouses, and the need of such a system is extremely urgent.”⁵

The farmer can store his produce and hold for a higher market if he desires, provided he can finance the undertaking. Good storage facilities will improve his credit. Bonded warehouse receipts will serve as collateral which make the farmer's loan as good as any on the market. Better storage facilities will improve the credit conditions of agriculture.

Better Grading. — The quality of the product which is offered as collateral has an effect on the amount of credit which will be extended. The better the product the better the credit. Grading improves the quality of produce and marketing conditions. Produce which is not graded is not a type which is readily accepted as security, mainly because an ungraded product has indefinite quality. Fifty bales of

⁵ U. S. D. A. Bulletin No. 216, p. 5.

cotton is not good security; but fifty bales of *middling* cotton is good security. When produce can be graded, it can be accepted as collateral in any money market. The grade is essential to a proper description of the produce and makes for improved market financing.

Better Reputation. — A man who has a reputation for honesty and financial responsibility can secure credit. The farmer who is known to the car-lot receiver in the city market as a responsible man can draw drafts as soon as his car is shipped. The receiver has no hesitancy in paying the draft when it is presented, because he knows that if there are any adjustments necessary the shipper will make the proper settlement. There is no risk attached to such a transaction. Farmers have not yet established that reputation for responsibility which is necessary for the securing of needed credit on desirable terms.

The lack of a reputation for honesty and responsibility is not due to the fact that farmers are necessarily dishonest or unreliable. It is due quite largely to the fact that farmers have not as yet established that close relationship necessary for securing credit with persons outside their own locality. Farm produce is going to distant markets. Crop movements are widening in their scope. Financing has not kept pace with market development. Too much has been expected of the local credit machinery. With the necessity for securing credit in distant money markets, there has not come the change in methods essential to the securing of this credit. Farmers need to modify their business and credit practices so that their paper and collateral will go into the distant money markets and find ready buyers.

Coöperative Credit. — Coöperative marketing organizations may assist quite materially in financing the farmer. An organization of farmers for marketing purposes, if properly managed, can attain a financial standing which will permit it to secure large amounts of credit in central money markets. Some of the large fruit organizations of California

and the Pacific Northwest have established a reputation for sound business methods and financial stability. These organizations can advance money to farmers upon delivery of produce. Such an organization takes the place of the local buyer in financing agricultural marketing. Since these organizations are coöperative in character, they are also of advantage to the farmer, in that the benefits of "orderly" marketing are secured by the farmer members rather than retained by the local shipper. To what extent agriculture can develop coöperative associations to market and finance its crops is not known, as this method has not fully proved itself for the country as a whole.

Coöperative societies for credit purposes have had success in European countries, but thus far have not developed in this country to any great extent. The principle is sound, in that paper backed by an agricultural community as a whole is more desirable than that which is dependent for payment upon one individual. Through such coöperative societies, the resources and other credit prerequisites of a community are combined and thereby develop greater strength.

Long-time Market Finance.—The dividing line between marketing and production is very difficult to discover under some conditions. Credit is needed to acquire the facilities for production. Orchards must be planted, barns built, machinery bought, and fertilizer and seed secured. These are expenses of production. Quite as important are machines for grading, equipment for packing, and warehouses for storage. Storage is not considered a productive process, but one of marketing. The farmer needs capital for financing the building of proper warehouses. Credit for this purpose must be long-time credit, as is that for the production of crops and livestock products. It is quite difficult to draw any distinction between the nature of the credit requirements of production and of storage for market.

If produce is to be properly stored in warehouses which

will really protect it, funds must be obtainable. If the produce is not to be dumped on the market at harvest, but "fed" in accordance with market demands, it is essential that these facilities for holding be available. The warehouse is one of the great essential requirements of an efficient market system. The financing of warehouse construction must of necessity be on a long-time basis. In the fruit industry, pre-cooling equipment is necessary for efficient marketing. This equipment is expensive and large amounts of capital are necessary to provide it. There is the tendency, because of size of the undertakings, for farmers to secure certain types of warehouse equipment and pre-cooling facilities on a coöperative basis.

Summary. — The credit needs of agriculture are different from those of commerce and require different machinery. Banking practices will change to bring about better facilities as the importance of this branch of credit increases. Legislation will do much to improve these facilities by changing banking laws and regulations. Farmers will greatly increase their credit by improvement in business practices, closer relationships with those in commerce, establishment of their financial responsibility, and coöperation with their neighbors.

CHAPTER IX

CARE IN PRODUCING, HANDLING AND PREPARING FOR MARKET

An idea which should be instilled into the minds of the farmers and all who handle produce is that goods properly produced and prepared for market are more than half sold. An understanding of this truth, and action in accordance with it, will bring about great improvement in market conditions. Manufacturers, especially in periods of intense competition, know well the importance of quality and what is indefinitely termed "value." The far-sighted manufacturer plans on the continuance of the enterprise long after the lifetime of those now connected with the business. Slipshod methods and "shoddy" goods do not make for permanence. Dependability of merchandise and service are factors which return profits and success. Business concerns which have behind them a history of long service, reputation and equitable financial success are those whose directors early realized the importance of "quality goods."

Most manufactured goods can be branded in such a manner that the identity of each particular item is maintained throughout the market process, and in many instances throughout the life of the article. It is quite essential, then, that reputation for quality be given due consideration.

Most agricultural products lose their identity as soon as they leave the grower's hands and go into the market channels on their journey to the consumer. Responsibility for quality is difficult to locate. The individual farmer apparently does not suffer because of poor quality. However, he does pay a severe penalty because the reputation of agricultural products cannot be established; and, what is more important, since the quality of produce is low, he must suf-

fer directly through lower prices. The movement should go forward for the improvement and the retention of quality. Good products rarely beg for a market. Farmers should keep their eyes on the market and always consider the effect of this or that act or omission upon the quality of the product.



FIG. 20. — If these potatoes had been left on the farm they would have made good hog feed. In this city market they cause expense. (Courtesy Bureau of Agricultural Economics, U. S. D. A.)

Since the placing of quality goods in the hands of the consumer is the goal, it is imperative that due consideration be given to (1) those things which are necessary for the production of quality goods; and (2) those things which are necessary in order that these quality goods may reach the consumer without deterioration.

There are many factors to keep in mind when considering the original quality of the product. These are problems of "production," but since quality has such a direct influence

on marketing, due consideration must be given them by the market student. Proper care and attention must be given livestock during the growing and fattening periods if meat products are to have the texture, flavor, and other qualities desired by the consumer. The husbandman should realize that he is producing things for a consumer. There should be a realization of what the consumer wants and just how he wants it. When a producer knows the demands of his market and is able to meet them in the right manner, success is assured. The production specialist should instruct in the manner of procedure and practices necessary to assure the kind of product which demand dictates.

To insure a correct growth and prevention of insect pests and diseases, fruits and vegetables must be properly cultivated, pruned, sprayed, and otherwise attended. Care in production leading to a good quality product is the first prerequisite of good marketing conditions. This is a factor over which the farmer has some control. Quality is the result of care, except in so far as weather conditions defeat man's precaution. However, the better the care the better the product. There is, on the other hand, a limit to the extent to which care and attention is profitable.

After Nature, assisted by man, has yielded a good quality product, the exercise of care should be continued very diligently. The crop must be harvested at the proper stage of maturity to insure flavor and keeping quality. Methods of harvest must be such that the produce is not bruised or injured. A great part of the deterioration of fruits and vegetables is due to lack of care in handling.

The causes of deterioration on 3676 cars of fruits and vegetables inspected by the Federal authorities in New York City, during the years 1920 and 1921, indicate that a great part of the loss was due to lack of proper care. The table given below shows the number of cars inspected and the causes for the defects which were shown.

This analysis is not one of a quantitative nature, but

rather one determining the causes for losses. In some instances the amount of loss was very slight, from 2 to 5 per cent. In other instances the amount of damaged produce ran over 50 per cent. The significant point here is that damage to fruits and vegetables actually inspected was due, in the opinion of the inspectors, to the causes listed.

	Number	Per Cent
Total cars inspected 1920-1921.....	4563	100
Cars showing no defects.....	887	19.4
Cars showing defects.....	3676	80.6
Total number of defects or causes of deterioration shown on inspection certificates.....	6642	100
Defects caused by insects.....	546	8.2
Defects caused by disease.....	3930	59.2
Defects caused by mechanical injury.....	849	12.8
Defects caused by too high or too low temperature.....	784	11.8
Defects due to other causes.....	533	8

It will be readily seen that the majority of the causes of damage are, for the most part, capable of control by man, if not of entire control, then at least of a certain reduction. The high percentage of disease — molds, decays, rots — is due, without a doubt, to the fact that mechanical injury, freezing and insect stings allowed the disease to start. In the case of potatoes there were many cases of soft slimy rot, due in many instances to freezing. If a history of each particular shipment of produce could be obtained from the time of harvest until it reached the consumer's door, it would no doubt reveal the fact that a large portion of the loss was caused by mechanical injuries and the excesses of climate.

Fruits and vegetables must at times be overhauled during the market process. This results in the addition of an extra expense to the market burden, as well as the loss of the produce which must be thrown away as being unfit for use. Figures given above show that deterioration is the result of factors which may be decreased, if not entirely elim-

inated, provided proper precautions are taken. Insect and disease injury is coming more nearly under control through the development of science. Temperature damage is, to a large extent, due to lack of attention in heating or cooling cars. A great loss, which has never been measured, occurs because warehouses, piers, and storerooms are not kept at



FIG. 21. — Improper packing and weak packages increase the risks of marketing. (Courtesy Bureau of Agricultural Economics, U. S. D. A.)

the proper temperature. Fruits, vegetables, and dairy products are often damaged because they are exposed to unfavorable temperatures while being transported to the local market.

There are many cases of improper methods in connection with the performance of the services of packing, transporting storing, and physical handling of the produce. Goods are improperly packed or loaded into the wagon, truck, or car. Boxes and crates are permitted to fall and become broken.

Bags are torn when handled with hooks. A product, such as butter, is shipped or stored with goods from which it absorbs an offensive taste. Very perishable goods are not rushed to the market before deterioration sets in. Consideration of quality should always be present in the mind of those who are performing any of the market services.

Cleaning is one of the necessary services of the grain trade, for the reason that good quality grain must be free from dirt, weed seed, other grains, and all other foreign materials. It is probably impractical to take the precaution necessary to eliminate all undesirable materials and seeds in a lot of wheat. On the other hand, this evil can be greatly reduced. Cleaning of seed and eradication of weeds in the fields will tend to keep at a minimum the amount of weed seed and foreign grains. This is a simple matter and one which everyone appreciates; however, sufficient precaution is not taken for the reason that a clear concept of the effect of neglect is not obtained.

A farmer might take all the precautions of weed eradication, careful preparation of seed bed, selection of good quality of seed of the proper variety, thoroughly cleaned and free from disease, and use care in harvesting so that the grain is put into the shock in good shape. At this point neglect might enter. The wheat might be permitted to stand out in the sun and rain and become bleached and sprouted. When this grain is finally put on the market, instead of having the fine qualities present when harvested, it would be of an inferior grade and the efforts made in the earlier stages would be entirely offset.

“ Of the winter-wheat acreage 44.3 per cent and of the spring-wheat acreage 94.7 per cent, or a total of 29,876,000 acres, were grown each year in the Great Plains area, where much of the wheat stood in the shock exposed to unfavorable weather for a considerable time while awaiting the thrasher.

“ The result of this exposure in the shock to the effects of rain and sun are a bleaching in color, an increase in mois-

ture content, and a decrease in test weight per measured bushel. Continued exposure brings about sprouting and molding in the shock."¹

The same precautions in the production of cotton might likewise be followed, and after ginning, the bales might be dumped on the ground in an open-air cotton yard. Cotton deteriorates when exposed to the weather. There is an enormous waste each year because of such neglect. Fruits, vegetables, dairy products, eggs, meat, and other products flow into the market and a portion of them show evidence of deterioration because somewhere along the line proper care has not been exercised.

Slipshod methods and lack of care cause wastes — real economic wastes. There is an expenditure of effort for which an adequate return is not received. The importance of such things must be impressed upon the minds of all those who have anything to do with the processes of production and marketing. Good quality products are desired. Practices should be such that good quality results and is maintained. Those who are familiar with the marketing and handling of produce realize the importance of proper care along the line from the field to the consumer's kitchen door — and even through the kitchen. Every effort of man should result in a utility commensurate with the effort expended. The slack and wasted effort in our economic life should be removed. Waste is expensive and someone must bear the burden.

Railroads, express companies, the United States Department of Agriculture, business concerns, trade and other associations are realizing the importance of this factor of waste and are making efforts to have it reduced. "Right Way," "Waste Prevention," "Careful Handling," and other campaigns are being inaugurated. Such efforts are worth while and are bringing results. They should be extended in every field of activity, and especially in agriculture.

¹ Bureau of Plant Industry, U. S. D. A., Circular No. 68.

Investigations Made by the United States Department of Agriculture. -- For several years the United States Department of Agriculture has been conducting investigations of methods of handling the different food products. Below are given extracts setting forth conclusions drawn from these studies.

Investigations in the handling and shipping of fresh cherries and prunes brought forth facts which were reported as follows:

"The shipment of cherries in a fresh state for long distances has been more or less unsuccessful, owing to the development of a large amount of decay and deterioration in transit and on the market. This decay is due to fungi which gain entrance to and attack the fruit through mechanical abrasions made in handling, to splitting due to rainy weather at harvesting time, or to brown-rot, which infects the fruit in the orchard.

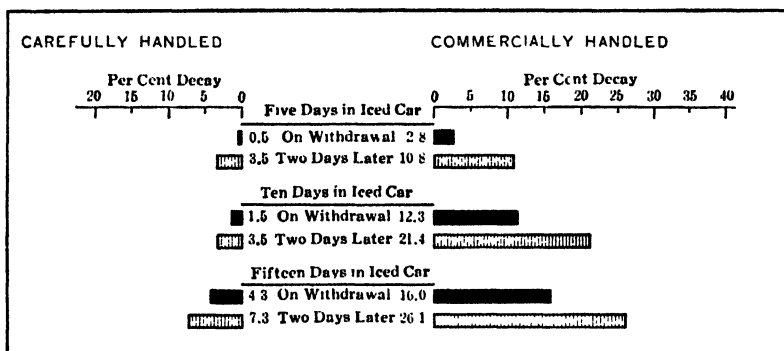


FIG. 22. — Diagram illustrating the percentages of decay in carefully and commercially handled cherries. Salem, Oregon, 1911. (U. S. D. A. Bulletin No. 331.)

"The results of these investigations demonstrate conclusively that the losses due to mold fungi gaining entrance through mechanical abrasions and injuries can be largely prevented by the exercise of proper care in picking, hauling, and packing, and in the careful grading out of all injured, stemless, and cracked fruit.

"Precaution should be taken not to bruise the fruit in the

hand when picking, when transferring it to the picking pail or bucket, or when emptying it from the picking receptacle into the field box.

"During the time the fruit is held in the orchard after picking, it should be kept in the shade. The wagons for hauling should be provided with good springs and the load covered with canvas, in order to protect the fruit from the sun and dirt.

"At the time of packing, the fruit should be carefully graded, so as to eliminate all stemless and cracked or split fruit. All cracked and stemless fruits included in the packing boxes are almost certain to decay, either from mold fungi or brown-rot.

"If the fruit is packed in the ordinary 10 pound boxes, the greatest care must be exercised in putting in facing layers to prevent the bruising, injury, or breaking down of the internal structure of the fruit."²

Careful handling experiments were carried on in connection with this investigation and the results are set forth in the diagrams opposite.

Extracts from the summary of the Prune Investigation:

"As with cherries, success in fresh-prune shipping is dependent upon the elimination of the decay occurring in transit and after arrival on the market, this decay being due either to mechanical abrasions or injuries in handling or to brown-rot with which the fruit has become infected before being removed from the trees.

"The results both commercial and experimental, indicate that unless a radical improvement is made in the method of handling as well as in orchard-sanitation practices, entire dependence will have to continue to be placed on evaporation for the disposal of this crop. Prunes can be picked, hauled and packed with comparatively little injury and resultant decay, provided the utmost care in picking is exercised to avoid bruising the fruit in placing it in the pail, in transferring it to the orchard box, and in hauling it to the packing house.

"In transferring the fruit to the field box the utmost care should be taken to prevent dropping or violent rolling, both

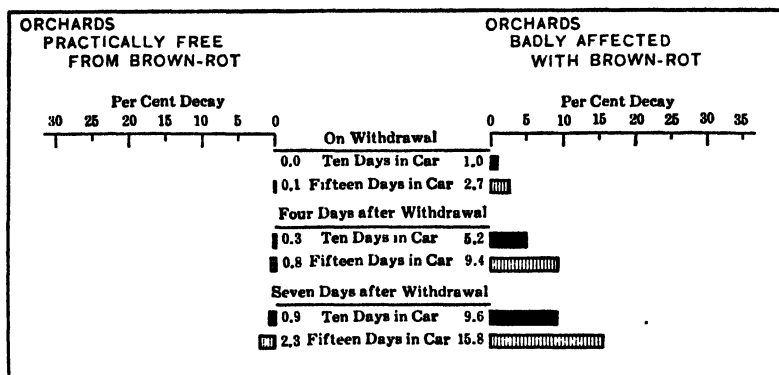


FIG. 23. — Diagram illustrating the percentages of decay in four series of prunes from orchards showing little or no brown-rot and comparable series from orchards badly affected with brown-rot, Salem, Oregon, 1913. (U. S. D. A. Bulletin No. 331.)

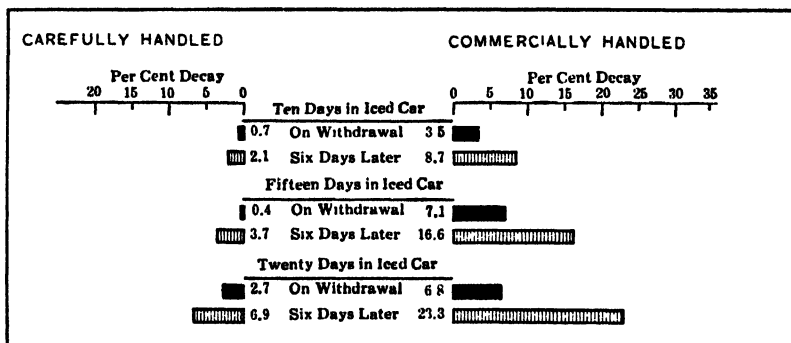


FIG. 24. — Diagram illustrating the percentages of decay in carefully and commercially handled prunes, Salem, Oregon, 1911. (U. S. D. A. Bulletin No. 331.)

AUTHOR'S NOTE. — (In this bulletin "careful handling" is explained by describing the methods used in picking and packing the experimental lots. Practically all the ordinary equipment common in commercial practice was used. The reader is referred to pages 7, 8 and 9 of this bulletin for a full explanation of the procedure followed. Reference is also made to U. S. D. A. Bulletin No. 274, which deals with shipment of red raspberries.)

with a view to preventing injury and bruising and to preserving the bloom.

"The fruit should be kept in the shade while in the orchard and hauled to the packing house on wagons provided with good springs.

"The load should be protected from the sun and dust by a canvas or other cover.

"In packing, the utmost care should be exercised in culling out all imperfect or cracked fruit, as the inclusion of one or a few such fruits in a crate tends to spoil the whole crate and depreciates the value of the entire shipment.

"Where possible, it is desirable to pack and grade directly from the lug box, in order to prevent the injury incident to pouring the fruit out on a packing table or into a bin."³

"Many growers realize, at least to some extent, the importance of and necessity of careful handling, but often times have no clear idea of what careful handling means or the seriousness of the slightest injury to the fruit. The elimination of losses due to blue-mold decay is not a matter of attention to one or a few details of the handling problem, but of exercising the utmost care consistent with commercial work in all operations of picking, hauling, washing, drying and packing, to prevent injuries, however slight. It necessitates thorough organization of labor and the most careful inspection of work, both in the field and at the packing house. With a view to more clearly emphasizing what constitutes careful handling practice, the various harvesting operations will be discussed separately. The recommendations and directions given are based not only on extensive investigational work, but on results of the most successful commercial practice in the practical handling of citrus fruits for shipment. The most common cases of injury are rough, careless handling by the workers; poor arrangement of machinery; undesirable types of washing machinery or machines carelessly operated; badly constructed drying racks or inefficient driers, steep gravity inclines or drops; scratches by finger nails in grading and packing; and lack of proper care in packing, nailing, and loading, either in handling fruits, individually or in the packing box. The washing of fruit in dirty, infected water and slow or but partial drying serve to infect with the blue-mold fungus

every scratch or injury made either in the field or packing house and to provide ideal conditions for its germination and growth.

“ Unless the fruit is properly handled in the field at the time of picking, the care exercised in the handling of the fruit in the packing house and the provision of machinery and equipment especially designed to handle the fruit both economically and carefully are largely wasted. The injurious results of bad field handling cannot be counteracted or atoned for by providing either the best equipment in the packing house or by exercising the greatest care in packing-house handling.

The amount of injury made in picking depends primarily on the picker and the equipment provided. In order to secure the desired results, the pickers must have a proper appreciation of and know what careful handling means and be supplied with the best tools and equipment obtainable. Given, however, the best of equipment, the care exercised by each picker in all the different operations of picking is the big determining factor. A careless workman will do poor work no matter what his equipment. Care in handling the fruit both in the field and packing-house is oftentimes largely nullified by careless, rough handling in hauling and unloading.”⁴

“ Success in the marketing of strawberries is dependent to a large extent upon the proper picking, grading and packing of the fruit. Strawberries of a dependable grade and pack inspire in the trade a confidence which is reflected in a greater demand and higher prices for the product. The best marketing facilities, however, cannot overcome the handicap of indifferent handling methods, and good prices ordinarily are not obtained for an inferior product. Confusion, dissatisfaction and lack of stability in the markets are caused, in a large degree, by carelessness in preparing the fruit for market.

“ The best of market facilities cannot overcome the handicap of inefficient picking, grading, and packing methods. The unsatisfactory condition and grade of strawberries frequently found on the markets indicates a great need for standardization and better handling methods.

“ Long exposure to sun, rain or dust, either in the field,

at the packing shed, or while being hauled to the loading station, will injure the picked strawberries.

"Boxes should contain a uniform grade of berries and be filled so that they are neither slack or so full that the berries are likely to be crushed. It is advisable to place the fruit under refrigeration as soon as possible after it is picked.⁵ Care should be exercised in the production of eggs that they will be of as good quality as possible. The hens should be provided with proper quarters and fed on clean, wholesome feed. The production of non-fertile eggs reduces losses materially. After gathering, the eggs should be kept carefully in the coolest and best ventilated place available."⁶

Activities of Commercial Concerns and Public Carriers to Reduce Loss Through Better and More Careful Handling Methods. — *The Frisco Railway* handles large quantities of apples grown in the Ozark region and has made an effort to improve the market conditions of this section by giving instructions to the growers. In one bulletin the following principles of apple harvesting are given:

"1. It is usually most profitable to handle all low-grade apples locally, by crushing for cider or vinegar; by canning and drying; or by selling for local consumption.

"2. In picking, grading, packing and hauling apples for shipment, remember that bruises at harvest time generally mean rotten spots later.

"3. All apples should be carefully hand-picked, except cider vinegar stock.

"4. Apples for shipment in bulk should, in most cases, be handled as carefully as apples for barreling.

"5. It usually means a loss to barrel and store low-grade apples, unless you have an early market for this class of goods. There is always some kind of a market for low-grade apples, if the grower will exert every effort to find it.

"6. Let all apples intended for cold storage hang until mature. This does not mean to wait until the apples have ripened and begun to fall.

⁵ Farmers' Bulletin No. 979.

⁶ Farmers' Bulletin No. 830.

"7. Prevent bruises in every way possible during apple harvesting. A few badly bruised apples will often ruin the sale of a box, a barrel or a carload."⁷

That damage to livestock during the market process is of great significance is evidenced by the attention which has been given to it by the Institute of American Meat Packers. Concerning this they report as follows:

"It is a costly mistake to believe that a particular loss on livestock falls on a single branch of the industry. Injured animals or damaged carcasses mean wasted meat, and in any business the penalty for waste is shared by every participant in the industry.

"But wasted meat or misused meat lowers the value of the dressed carcass, and thereby indirectly lowers the value of livestock. The prices which can be paid for livestock are limited in the long run by the amount of money which can be obtained for meat. The total receipts from a bruised, crippled or mutilated animal are less than the receipts from a prime specimen. If the steer raised by one producer is mishandled, the loss falls not only on him but also on all other producers.

"In the long run a loss which represents waste is the misfortune of every man in any phase of the livestock or meat business — and of the public.

"Avoidable losses on livestock in this country aggregate

⁷ Harvesting Ozark apples. St. Louis-San Francisco Railway Company Department of Development.



FIG. 25. — The freight bill on this car load of "produce" was just as much as if it had been fit for consumption. Someone must pay for hauling it to the dump heap. (Courtesy Bureau of Agricultural Economics, U. S. D. A.)

thousands of dollars daily and millions of dollars yearly. They also cause a preventable reduction of the nation's food supply. A great part of these losses can be eliminated.

"The gravity of the situation is easily overlooked when one considers merely an individual case of loss. For example, the loss of one-half pound of meat because of a bruise in a single hog does not seem significant. Yet the direct loss on this account last year (1919) is estimated at \$3,508,880 and the loss of meat is calculated to be equivalent to 8,295 hogs, requiring for their feed 1,605,900 bushels of corn and for their shipment 575 cars.

"In these days of high cost of living surely it is worth while to correct conditions of this sort. One animal dead on account of transit delays will not constrict the nation's meat supply. A single steer trampled in an overloaded car, a young porker suffocated by ammonia fumes from faulty bedding, a crippled calf or a nail-gashed



FIG. 26. — A carcass of a hog which has not been bruised. (Courtesy Institute of American Meat Packers.)



FIG. 27. — A hog carcass showing cuts made by lash as illustrated in Fig. 28. (Courtesy Institute of American Meat Packers.)

hog will not impoverish the packers or bankrupt the producers or raise materially the price of consumer's meat, but all of these losses are multiplied over and over day by day and year by year.

“ Those who earn money by raising, feeding, shipping, selling or dressing meat animals clearly face the duty of ascertaining systematically the cause of such losses and of correcting conditions where possible.”⁸

During 1919 the members of the Institute of American Meat Packers kept a record showing the actual loss on account of bruised meat for one week. The results of this are shown in the following table:

Hogs killed at 37 markets, during one week.....	229,606
Total loss of meat per hog.....	$\frac{1}{2}$ pound
Total loss meat 37 markets, during one week.....	114,803 lbs.
Average live weight hogs killed at Chicago.....	238 lbs.
Average live cost hogs killed at Chicago.....	\$15. 00
Average dressed cost hogs killed at Chicago.....	20 00
Total loss account bruises.....	\$23,860 00
Loss of meat equivalent to.....	501 hogs
Loss of meat also equivalent to.....	5 cars
Corn required to raise lost hogs.....	11,930 bu.

An estimate of loss due to bruises for the year 1919 was made as follows:

Hogs killed at 53 markets 1919.....	30,512 000
Estimated loss meat per hog.....	$\frac{1}{2}$ pound
Total loss meat 53 markets.....	15,256,000
Average live weight hogs killed at Chicago.....	190 lbs.
Average live cost hogs killed at Chicago.....	\$17 85
Average dressed cost hogs killed at Chicago.....	23 00
Total loss account bruises.....	\$3,508,880 00
Loss of meat is equivalent to.....	80,295 hogs
Loss of meat also equivalent to.....	575 cars
Corn required to raise lost hogs.....	1,605,900 bu.

“ The figures given in the two tables above represent only the amount of money lost on account of bruised meat removed and sent to the tank to be rendered into an inedible product. It does not include the vast additional loss on cuts from which the bruised meat has been removed and which have been reduced in grade as a consequence.

“ There are many causes of bruises which cannot be

⁸ Livestock Losses and How to Reduce Them. Institute of American Meat Packers.

eliminated. Animals fall down on sleet and ice, and sometimes even in warm weather. Some animals are kicked and others are injured in loading and unloading and in overcrowded cars. Bruises are also caused by heavy clubs, prod poles bearing spikes, by kicks from the driver's foot and sometimes even by the prongs of pitchforks. Abuse and mistreatment may occur on the farm, in pens or elsewhere. When the animal is dressed, the evidence of abuse is disclosed and means waste of meat and loss of money all along the line."⁹



FIG. 28. — This kind of a whip injures the carcass. (See results in Fig. 27.) (Courtesy Institute of American Meat Packers.)

Conferences held by the Institute revealed the principal sources of losses to be:

1. Bruises and other injuries due to mistreatment.
2. Delays in shipment or in transit.
3. Losses due to faulty equipment.
4. Losses due to improper bedding of cars.
5. Losses due to heavy loading.
6. Failure to water during transit.



FIG. 29. — This kind of a strap is just as effective in driving hogs and results in no injury. (Courtesy Institute of American Meat Packers.)

⁹ Livestock Losses and How to Reduce Them. Institute of American Meat Packers.

7. Improper drenching or sprinkling or failure to do same.

The following "DON'T'S" are summarized by the Institute of American Meat Packers from a discussion at a conference held in Chicago on ways and means of reducing livestock losses:

DON'T permit cinders, rock dust, coal slack and similar materials to be used for bedding for your livestock.

DON'T try to save money by overloading a car. Overloading means crippled, trampled, suffocated and dead animals.

DON'T trust to luck that the railroad has removed protruding nails from the car furnished to you and DON'T assume that the door fastenings, floor patchings, etc., are in an acceptable condition.

FIG. 30. — This kind of a prod pole injures meat. (See Fig. 32.) (Courtesy Institute of American Meat Packers.)

DON'T let drivers hurry your hogs down or up steep chutes.

DON'T try to save time by driving hogs to death in hot weather.

DON'T throw cold water on the back of an overheated hog. Throw a fine spray on his belly or sprinkle the floor of the car or pen.

DON'T load hogs in cars when they are hot or panting. It means death from suffocation.

DON'T forget that the bruised and crippled hog bruises and cripples the shipper's credit balance.

DON'T fail to complain if pens are paved with mud or if chutes are dangerously steep.

FIG. 31. — This prod gets the hog along as well and causes no meat loss. (Courtesy Institute of American Meat Packers.)

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DON'T re-load cripples found when stock is fed or watered in transit.

Some idea of the magnitude of the problem of crippled and dead animals received at the market is obtained from the report of Western Weighing and Inspection given below:

Inspection Point	Cars received		Cars forwarded		No. Crippled and dead	
	Year 1919	May 1920	Year 1919	May 1920	Year 1919	May 1920
Chicago . . .	296,082	22,632	24,431	813	62,792	3,410
E. St. Louis..	110,960	7,309	33,357	1,562	29,300	2,377
Kansas City .	159,748	10,242	56,886	2,595	19,307	1,265
St. Joseph. .	59,696	4,774	12,989	1,234	7,106	830
Oklahoma Ct. .	22,338	1,700	5,655	364	1,825	187
Wichita	13,199	1,069	5,367	340	916	109
So. Omaha . . .	135,771	8,806	47,108	2,498	17,693	1,303
Sioux City . . .	68,421	5,491	28,598	2,169	10,685	692
So. St. Paul .	80,891	5,070	44,101	1,269	11,868	1,235
Denver	38,918	3,340	26,544	2,531	2,841	207
No. Ft. Worth	46,057	5,148	20,502	2,955	5,296	653
	1,032,081	75,581	305,538	18,330	169,629	12,268*

* Livestock Losses and How to Reduce Them. Institute of American Meat Packers.

In order to present in a popular way the magnitude of losses from improper handling of livestock, The Institute of American Meat Packers offers a little lesson in arithmetic:

BLACK AND BLUE ARITHMETIC

10,089,984 = Cattle slaughtered under Federal Inspection in 1919.

29% = Average percentage of bruised cattle reported by members of the Institute.

2,926,095 = Estimated number of bruised cattle among those slaughtered under Federal Inspection.

1.27 = Average number of pounds per head removed on account of bruises to cattle slaughtered under Federal Inspection.

3,716,141 = Estimated number of pounds of meat removed
on account of bruises to cattle slaughtered
under Federal Inspection.

59 = Per Capita consumption of beef in the U. S.

$3,716,141 \div 59 = 62,985$ = Number of year the lost beef
would supply one person at normal rate of
consumption.

This would be a normal supply for 63,000 persons for
365 days. Is it worth saving?

And this is only one phase of losses on livestock — losses,
which less in part at least, are avoidable.¹⁰

The campaign which the Institute of American Meat
Packers has inaugurated is worthy of the support of every-
one who is really interested in improving the economic well-
being of the country. The problem of conservation of effort
and economic goods is one of paramount importance — of
just as much importance as that of economical production
methods. Efforts put forth by such a body of business men
is evidence of a realization of the magnitude of the problem
and the possibility of elimination of a part of the loss by
following certain simple practices.

Figures published by this organization are indicative of
the existence of the problem in one field only. If the other
organizations could gather facts for their lines of trade and
all losses be totaled, the grand total loss would no doubt be
enormous. The outstanding fact in this connection is not
that the losses are so enormous, but that such a great pro-
portion of them are due to causes which can be eliminated
without undue effort. A little more care in doing the tasks
of everyday work will cause a great saving.

Some practices which could eliminate losses would be,
without a doubt, too expensive. The practices would not
be economical. Many of them, however, especially in con-

¹⁰ Livestock Losses and How to Reduce Them. Institute of American
Meat Packers.

nection with livestock, are very inexpensive and to a large extent are nothing more than following simple rules of humane treatment. The indiscriminate use of whips, clubs or prod poles cause losses which are never apparent until the animal is finally butchered. The following illustrations clearly indicate the nature of such wastes.

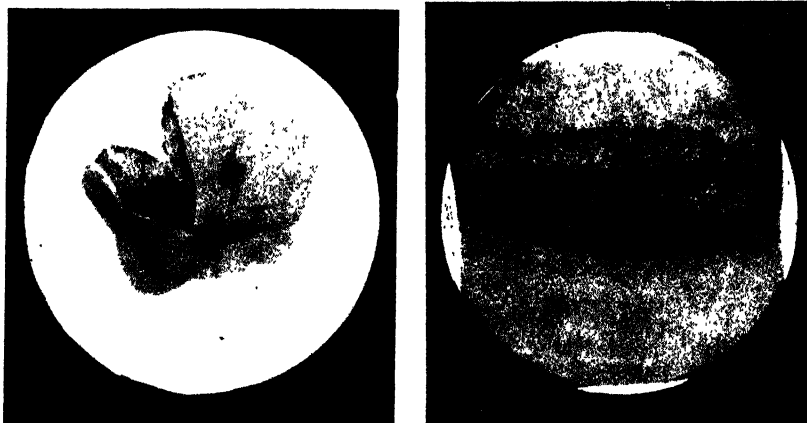


FIG. 32.— The results of the sharp prod pole and bruises from whips are shown in these illustrations. (Courtesy Institute of American Meat Packers.)

The American Railway Express Company early in 1919 became impressed with the vast amount of loss of food products during transportation and the ever-increasing amount of money which it was compelled to pay out on claims. An active campaign was inaugurated which came to be known as the "Right Way Plan."

The purpose of this campaign was to inform the public and the express company employees of the magnitude of the loss, its causes, and the methods which could be profitably followed to effect a reduction. Pamphlets, circulars, and placards were used to illustrate the right and wrong ways of doing things. Demonstrations of the proper manner of packing, marking, and loading goods in cars were conducted. Some of the points which were stressed seem

so simple and self-evident that it appears almost a waste of time to call attention to them; however, the simple and commonplace precautions are the ones which are so often neglected. It is self-evident that a package cannot be delivered by a carrier unless it is properly addressed in such a manner that the address is legible and will remain on the package until delivery can be effected. However, a part of the loss each year is due to faulty marking. The campaign



FIG. 33. — Someone's negligence caused this waste.

in this instance has been a success. It has not only effected a reduction in the amount of claims paid by the express company but it has also saved food products — an item which is of vast import to society. During the year 1920, the express company paid out on loss and damage claims approximately \$5,635,000. Partly as a result of the campaign which was conducted, the 1921 payments were reduced to \$2,250,000, a reduction of more than 50 per cent.

Some of the Express Companies DON'TS:

1. Don't use poor, flimsy boxes, crates or baskets.
2. Don't fail to mark the nature of **PERISHABLE** goods on the outside of the package.

3. Don't ship meat or poultry products without pre-cooling.
4. Don't keep fish out of water too long before icing.
5. Don't ship over-ripe or soft fruit.
6. Don't fail to properly mark package with name and address of both consignor and consignee.
7. Don't use second-hand honey comb egg fillers.
8. Don't expose eggs to excessive cold or to heat. Store them in a cool, well-ventilated room.
9. Don't use second-hand crates unless well reinforced.
10. Don't ship eggs unless you ship them properly — Well Packed — Well Marked.

Wheat is one of the "non-perishables." It does not seem that there would be great losses due to careless methods of handling this product. Losses occur, however, through damage to the grain and wastage. The harvester leaves many straws uncut. Fallen grain is sometimes never reaped because the machinery is not properly adjusted. Improper binding of the bundles permits much scattering of grain about the fields. Permitting the grain to get too ripe before harvest begins causes a great loss through shattering. During wet seasons, wheat which is permitted to stand too long in the shock becomes sprouted. Many of these losses can be prevented by proper care and attention.

The Southwestern Wheat Improvement Association, realizing the extent of loss to farmers because of lack of attention, has issued a bulletin in which it says:

"It seems like poor business to spend time and money in producing a wheat crop and then when it has matured lose part of the quality and profit through damages due to poor handling. According to data shown in this bulletin, the average annual loss in the states of Kansas, Nebraska, Oklahoma and Texas, on account of various forms of damage occurring to wheat between the time it matures and the time it reaches the market, amounts to approximately \$5,000,000, or two cents on every bushel grown. The loss to

Kansas alone amounts to more than \$2,500,000 each year or 27 cents on every acre harvested.

"The following figures, secured through the courtesy of E. L. Morris, of the Kansas City office of the Federal Grain Supervision, indicate some of the losses through low grades. A total of 54,837 carloads of wheat was inspected and marketed at Kansas City from July 1, 1922 to April 30, 1923.

Grade No. 1	1,040 carloads
Grade No. 2	16,139 carloads
Grade No. 3	20,214 carloads
Grade No. 4	9,128 carloads
Grade No. 5	2,667 carloads
Sample Grade	5,649 carloads

"The first three grades are considered as good milling wheat, but that falling in grades 4, 5 and Sample are inferior and sell at from 2 to 12 cents a bushel under Grade 3. These figures show that 32 per cent of all wheat delivered in Kansas City, between the dates indicated, fell below Grade 3." (See. Fig. 34.)¹¹

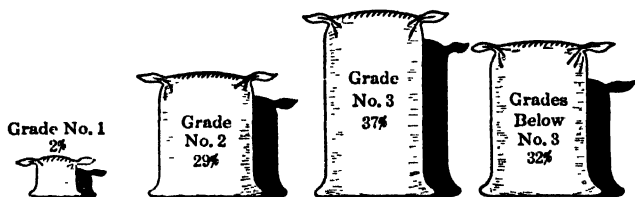


FIG. 34. — Percentages of each grade of wheat received on the Kansas City market from July 1, 1922, to April 30, 1923. Lack of care in production and handling caused the high percentages of lower grades. (Courtesy Southwestern Wheat Improvement Association.)

Numerous examples of losses due to rough or careless handling might be cited. It is only necessary to go into the market places to see this waste. While waste is probably not as great as some persons would believe, it is an important item and is the cause of an added expense to the market process. In the city of New York alone, somewhere in the neighborhood of 800 carloads of food products are each

¹¹ Handling Wheat from Field to Market. The Southwestern Wheat Improvement Association, Kansas City, Mo.

year officially condemned as unfit for human consumption. While this is not a large percentage of the total receipts of food products in that city it must be remembered that this quantity represents only a part of the waste, as there is a great amount of produce discarded which never comes to the attention of the city officials.

The item of freight alone on goods coming into city markets unfit for human food is enormous. The freight bill on lemons officially condemned by the New York City Board of Health during the year 1920 is estimated to be over \$20,000.¹² The United States Department of Agriculture estimated that the loss in freight alone on a car of damaged potatoes coming into New York City from Maine in 1914 was \$57.50.¹³

There will be an increased return for the efforts of farmers when these efforts result in good quality products of the kind demanded by consumers. Waste is expensive, and those who cause waste must surely pay for it through decreased income.

If waste is to be reduced to the minimum, there must be a united effort on the part of all those who have to do with the handling of produce. The farmer must give produce the necessary attention during the growing and harvesting period. All handlers, after the goods leave the hands of the farmer, must give strict attention to the preservation of quality. Our productive and market machinery must give a return commensurate with the amount of effort expended. This can never be the result unless waste is reduced. Neglect to do a certain thing at the proper time or carelessness in handling a product may offset the result of many hours of productive labor. A campaign to reduce waste should be one of the foundation stones on which to build an efficient market system.

¹² This estimate is based on official data collected by the author during the summer of 1921.

¹³ U. S. D. A. Office of Secretary, Circular No. 48, p. 3.

CHAPTER X

DEMAND

A merchant in the wholesale produce business on the New York City market recently expressed the thought that there was nothing to be gained by studying the market. "Prices," he said, "are governed by supply and demand, and there is no use in trying to change this basic economic law."

It has been reported that a few years ago a group of farmers in the West, in convention assembled, expressed the view that the law of supply and demand was no longer in operation and passed a resolution requesting the state university to quit teaching this false doctrine. We find it quite common for the man in the street to attempt to explain all prices and price changes by the "supply and demand" formula. There are others who think that "supply and demand" is merely a mask behind which the "manipulators" of the market hide their unjust practices. The student of markets must get a clear concept of the influence which the supply of products and the demand for them has on prices. The misconceptions concerning this economic law which are current in the modern world are due to the fact that no insight into the meaning of the term is sought. It is not an explanation of prices to say that they are the result of supply and demand. It is merely an evasion of the question.

Man's wants are basic to all value. If the customs, morals, practices, or habits of man change so that a certain thing is no longer desired, then the value of that thing disappears, regardless of the amount of effort which was necessary to create it. Service flags were of value during the war because there was a use to which they could be put. They

were offered on the market and sold at a price which was remunerative to the manufacturer. As soon as the war ended, the desire on the part of the public for service flags was no longer present. These articles had no value, except to the curio or souvenir collector. Nothing has value unless it has some quality which will render it capable of satisfying wants. There is nothing in the inherent qualities of any product which gives it value. Tobacco has value because men desire it. If the desire which many people now have for tobacco and its products should pass away, then the value of this good would likewise pass away. Human wants are the basis of value. When men desire things and have the means with which to buy, then demand is said to exist. This is one part of the price-making formula.

There are many things which satisfy man's wants and yet have no economic value. Anything which does not satisfy a want has no value. Air certainly satisfies a want of man. It does not have economic value for the reason that it has no power in the markets of the world. Air cannot be taken into the market place and exchanged for economic goods. The reason for this is that man does not have to make an effort to secure it. Man will not exchange anything which he must secure by an effort for a thing which is secured without effort. Air, then, while it is capable of satisfying wants, has no value because it is not scarce. The supply of air is unlimited in comparison to the demand for it.

Goods capable of satisfying wants enter into the market and command a price, provided they do not exist in quantities more than sufficient to supply the desire for them. When the supply is short, then man exerts effort to make them less scarce. There are some kinds of goods the supply of which cannot be increased. The value in the market of such goods, then, depends entirely upon the extent of the demand.

The supply of most economic goods, however, can be

increased. Men will labor to increase the supply of any particular good just as long as the effort necessary will return as much, or more, satisfaction as the same amount of effort expended in producing other goods. We have here, then, the other end of the price-making formula — that of supply. The formula, supply and demand, came into existence because goods must be desired or demanded and the amount which we give up for them has been found to be, in actual practice, dependent upon the quantity which is available in the market to satisfy the demands for them.

It might be considered that goods have value according to their ability to satisfy wants, or their utility. This viewpoint must be held only in relation to the whole supply of a certain product. Air has no value for the reason that the greater portion of air has no utility to us; that is, there is so much air that great portions of it can never be used and anything which cannot be used has no value, even though it *would* have value if it could be used.

A farmer grows 10,000 bushels of wheat. If his wants can be supplied with 1000 bushels, there would be no use to which he could put the other 9000 bushels, and it would have no value to him unless he could exchange it for something else which he desired. If economic society at large has more of a product than normal consumption could utilize, then a part of this stock of goods would have no utility. Since each unit of the stock of goods is the same as every other unit, no value would attach to any one unit so long as the stock was in excess of the needs.

Supply and demand influence price. The supply of a product is one of the basic factors determining the amount of other things which will have to be given up for it. On the other hand, the intensity of the demand for a good has a vital influence on the amount which the demander will give up in order to get it. If the supply is short, each particular unit is of more importance in the satisfaction of all of the desires for it than where supply is great.

If the seller knows the supply is short, he will hold out for a high price. Price in our modern economic system is merely a measure of the amount which we are willing to give up in order to get possession of a product. The desire to be satisfied and the quantity of the goods available for the satisfaction of these desires enter into the market place and are weighed one against the other. Price is the result. Supply and demand are important price-making factors. When the supply is relatively large, the importance of each unit of a good is low, and the price is low. When the supply is low, the relative importance of each unit of the good is high, and the price is high.

There is no such thing as conceiving of a high or low supply in a mere quantitative manner. There might be a world wheat crop of 3 billion bushels. This would not indicate that supply was either great or small. Supply is great or small only in relation to demand. The number of straw hats after the Fourth of July is usually smaller than before; but the supply, in the true sense, is greater, for the reason that the demand has greatly decreased. Scarcity does not mean fewness. Scarcity or abundance must always be considered in relation to the demand for the product. An over-abundance of goods might result without any increase in the number of units or the desire for them, through a reduction in the ability to pay the price asked.

Stable business is the result of regularity and the reduction of risks. The farmer prefers to conduct his business in such a manner that he will be able to count very definitely on a certain return for his efforts each season. Those business men whose aim it is to get their rewards from the rendering of service avoid all risk if possible. Business, to be stable and secure, must be relieved from the element of risk in so far as possible. If prices are relatively stable, the farmer, manufacturer, or business man can adjust his costs so that an adequate return will result. In agriculture, expenses of production are incurred a long time before the

product is ready for the market. A great many things might happen to cause prices to fall below the point where the enterprise would be profitable. Agriculture is a world-wide business selling products in a world market. Things which happen in other parts of the world, among people of different standards of life, have a profound influence upon the prices received for the products of the farmers of Kansas, Montana, and British Columbia.

Since it is true that the amount of product which enters the market has an influence on the price just as the extent of the demand does, it is quite essential that some consideration be given to the supply side of business. It is also important that those who offer goods on the market study the demands of the market, not only in a quantitative way but also from the standpoint of quality. The kind of goods which a market demands should first be ascertained. Then there should be determined the amount of goods which the market can absorb at a price which will be remunerative.

The manufacturer has studied his market. He has gone into the market places and studied just why this or that product has been sold. The failure of this practice or that good to attract the buyer has been the object of concern. The successful manufacturer and trader is able to appraise the condition of both demand and supply. Agriculture, as an industry, has never gone into the market and made this kind of analysis. Crops have been grown in the amount and kind which suited the individual preferences of the farmer. The product has been grown and the market then sought. Instead of this procedure, the market should have been studied first and production guided by the information obtained. Agriculture is now in a critical condition because its products cannot be sold at prices which are in keeping with costs of production and prices of other commodities. There must be, if any lasting improvement comes in the condition of agriculture, a study of demand, and then a concerted effort to supply the things demanded.

Value in the market place represents a concept in the mind of the buyer. If the buyer thinks a thing to be of certain importance to him, he will give up a certain amount in order to get it. The market price is the result of the composite demand of all those who enter into the market place and bid for the supply of goods at hand. In order that one may go into the market, get the greatest returns, and satisfy the demands of the consumers, it is necessary that he be able to discover what is wanted and just how it is wanted. Quantity and quality demands must be sensed.

Demand is very fickle. To-day the public may be clamoring for brown shoes of a certain last. Next season brown shoes may not be wanted at all, but a preference may exist for black shoes. Just why the mind of the public works as it does and results in certain specified desires is impossible to ascertain in every instance. Sometimes the fashion-makers cannot direct demand in the way they desire. Fashion might decree the long skirt for women, only to find that most of the women do not take kindly to the idea. Clothing, automobiles, furniture, house and building furnishings and equipment, and novelties of all kinds are subject to fashion changes. In the case of such products, demand is very apt to change rapidly.

Factors which Determine the Demand for Products. —

The factors which determine the demand for certain goods must be ascertained in each individual case. In general, these factors are as follows:

1. *Buying Power of the Consumers.* Mere desire or actual need is not demand. A man might need products and have a keen desire for them, but unless there is the ability to make the purchase there is no demand which will have an influence in the market place. The ability and willingness to pay the price is quite essential to demand. Whenever a business depression comes, we note a decrease in the demand for products and realize that this decrease is due, in a great part, to the diminished buying power of the public.

2. *Climate.* Climate is one of the factors which influence demand. Ice-skates and snow-shoes will not be demanded in tropical countries for they would be of no use. Being of no use, they would not have value. Changes in climate affect the demands for different kinds of products. Warm weather continuing far into the winter months will decrease the demand for overcoats and winter dry-goods. The demand for meat is not as great in warm as in cold weather. Cool days throughout the summer cause the demand for watermelons, ice cream, and fountain drinks to be small. On page 99 is given an illustration showing the effect of climate on the demand for watermelons in New York City during the season of 1922. Climate has a direct effect on demand. Those who are dealing in products the demand for which is subject to such influences must consider the effects of climate on demand.

3. *Composition of Population, as to Age, Sex, Race, Religion.* In a population with a very small percentage of children, there would not be present a very great demand for toys, children's clothing, story-books or baby-cabs. The demand for milk would also be smaller than in a population with a large percentage of children. In pioneer sections of the country, where there is a predominance of young men, the demand for all classes of goods used by children and women is very slight. The mining camp, far away from cities, is a poor market for talcum powder and dress suits. Likewise the community in which the young ladies' boarding school is located is not the ideal place to sell picks, shovels, overalls, or Star tobacco. In the community where there is a large Italian population the demand for spaghetti and bananas is apt to be great. The Catholic community is the desirable community for the sale of religious statuary, while the Jewish city provides a good market for live poultry and a poor one for pork.

4. *General Level of Education.* Demand for certain products is greatly influenced by the level of education.

In a community where the people are generally uneducated in art, music, or literature, demand for musical instruments, concerts, operas, books, magazines, and pictures is apt to be very low. Some towns are poor towns in which to sell books because the people there are not readers. In communities where a large proportion of the population has been educated in colleges or through travel, demand for certain types of goods will be greater than in those communities where the people have never learned to desire such goods. Education, whether it be gained through reading or travel, results in giving us knowledge of certain things. With knowledge comes desire, and desire ripens into demand if there is the ability to pay.

5. *Styles, Fads, Customs.* Style has an influence on the demand for certain types of products. The demand for women's clothing is much more subject to the influence of style than is that for men's clothing. Furniture styles change periodically, with the result that demand is influenced. A change in the style of furniture will often cause many people to discard old furniture for new. House-furnishing goods, automobiles, carriages, art goods, and decorations have distinct styles, and demand is changed as styles change.

Fads of many different kinds — recreational, for example, — cause the development of a demand for certain types of products. The increase in the popularity of golf has greatly increased the demand for golf clubs, balls, bags, and clothing. Agitation for more outdoor life and exercise has greatly increased the demand for all kinds of sporting goods. In some localities the revival of the custom of riding bicycles has resulted in an increase in the demand for them.

Customs, such as that of wearing a straw hat from May 15 and to September, influence the demand in the hat market. The demand for talking machines, radio outfits, playing cards, croquet sets, put-and-take tops, the books of a

certain writer, and numerous other things is greatly influenced by fad or fashion.

6. *Faith in Goods.* The demand for many different kinds of trademarked goods is dependent to a marked extent upon the faith which consumers have in the particular article. It may be that the article in question is no better -- often not so good -- than others; but the faith which people have in these goods maintains a strong demand for them. This faith may be due to experience gained through long usage or to extensive advertising.

7. *Quality.* Many goods which can not be branded are in demand because their quality is good. This applies to goods which the consumer is able to evaluate for himself. Goods which the consumer is not capable of testing as to quality are apt to be branded -- if it is possible -- and purchases made almost entirely on the reputation of the brand. Good quality products attract, and the consumer will, as a general rule, buy the best quality. The quality of a product has an influence on the demand for it. In many instances the buyer gauges quality by appearance and price.

8. *Class Prejudice or Favor.* The union label on goods is often a factor which will influence the purchaser in his choice. A product made by some coöperative organization is frequently preferred to others. Products "not made by the trust" find favor over "trust made" articles in many localities. Prejudice or favor is an item which enters into demand quite forcibly in many instances. Manufacturers, realizing this, often brand goods in some such manner as "Made in America," "Made in Ohio," "Patronize Home Industry," or "Union Made."

9. *Health Considerations.* Demand for food products is influenced through appeals to the desire for health. Campaigns to decrease the consumption of meat on the ground that it is not healthful to eat so much meat have, without a doubt, had an effect on the demand for this product. "Have you had your iron to-day?" is a slogan which appeals

to the universal interest in health. The publicity given to the recently discovered vitamins has increased the demand for those products which are high in vitamin content. "There is no substitute for milk," is an appeal based entirely on considerations of health. "An apple a day keeps the doctor away." "Does coffee hurt you too?" Countless examples might be given of appeal on the ground of health preservation. All the appeals which are made from the standpoint of sanitation are based on the same ground.

10. *Convenience of Use.* Many goods have the qualities desired, but there are others which are more convenient to use. Instant coffee, ready-baked beans, and prepared foods of many kinds need only to be opened and served. Floating soap is a convenience which is worthy of consideration. One-man automobile tops, easy-opening davenport, automatic water heaters, fireless cookers, "30-inch high" kitchen sinks, self-wringing mops, step-saving kitchen cabinets, electric washing machines, tooth paste in handy tubes, and countless other products make an appeal on the ground of ease in use and of convenience.

11. *Durability.* An appeal to the consumer is made on the basis of durability. The magazine advertisement tells the story of the automobile tire which ran 15,000 miles. This product "lasts a lifetime." It is claimed that a certain piece of office furniture is "built like a sky-scraper." We are told that this brand of shoes or clothing will "wear like iron" or "wears like a pig's nose." The appeal on the ground of durability and long service is quite generally made. This is an appeal worthy of the buyer's consideration and should, without a doubt, have more weight in influencing choice than it now does. Durability in many types of goods is of vastly more importance than style or convenience, a hammer, shovel, or wagon, for example.

12. *Attractiveness.* The beauty of an article is a quality which has its appeal. Automobiles, clothing, furniture, art goods, china, silverware, books, houses, pianos, and horses

are more desirable when they are attractive. The quality of beauty is one which is more important to some commodities than to others; however, other things being equal, the more attractive an article is, the more it will be desired. Man's preference for things of beauty is fully realized by the manufacturer who places his product in an attractive package; by the fruit dealer who arranges his display in an attractive manner so that the highly colored fruit is in

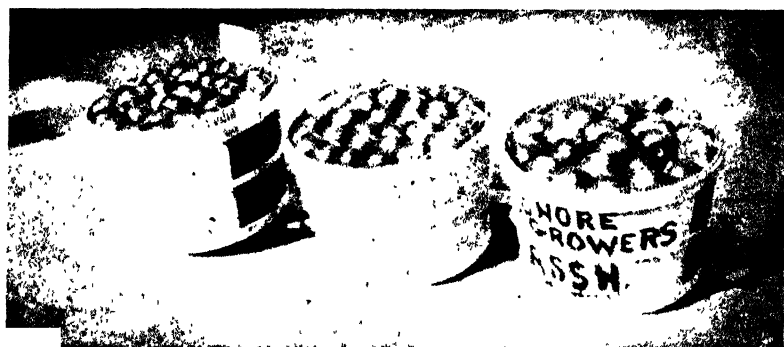


FIG. 35. — Fruit properly packed and graded stimulates demand.

evidence; by the window trimmer who appeals to our sense of beauty in order to attract attention to what he has on display. Man instinctively loves beauty and will pay for things of beauty. Our standards of beauty are not always the same. What appeals at one time may not appeal at another. What attracts one person may not attract another. It is quite essential that those who aim to make an appeal to our aesthetic sense keep informed as to our standards of beauty. The farmer is able to appeal to the sense of beauty by properly packing his product in packages which carry attractive labels.

Factors Influencing Demand for Agricultural Products.

— In general, it may be said that the demand for the staple agricultural products is rather inelastic. However, the demand for all kinds of products is elastic to a certain extent. Buying power is one of the factors which always enter into

the demand for agricultural products, as for all other goods. It is also true that the demand for agricultural staples is less elastic and is influenced less by decreased buying power than demand for those goods which are classed as other than necessities.

When decreased income makes it necessary for the consumer to watch his expenditures more closely, there is naturally a saving in food products, as well as in other kinds of goods. Cheaper cuts of meat are purchased. The cheaper foods are substituted for the more expensive. A smaller quantity is purchased, and the wastes of the kitchen are reduced. Substitutes, whenever possible, are used. During times of depression, butter substitutes are used instead of butter. Recipes which make possible the baking of pastries and cakes with a small amount of butter, fewer eggs, and little or no milk are in demand. "Milk" prepared from skimmed milk and vegetable fats is cheaper and is used in place of the more expensive fresh whole milk. The poorer quality of vegetables and fruits is then more attractive to buyers than it is in times of greater prosperity. On the other hand, the demand for the cheaper, more nourishing staples holds up very well, as it is to this type of food that those who economize must turn. The demand for cotton holds up well, as cotton is used in place of silk, linen, and the more expensive fabrics. In real "hard times," clothing is repaired and patched and caused to last longer. It is impossible to gauge the demand for such cheap staples and definitely state to what extent the demand is higher or lower. However, we can note the opposite forces influencing demand. It is quite true that buying power has a significant effect on the demand for agricultural products.

Climate, likewise, has an influence on the demand for agricultural products. Changes in weather affect greatly the demand for milk in cities. Cool weather usually leaves a surplus on the hands of the distributor. Warm weather usually brings an increased demand for such products as

fresh vegetables, fruits, and all those types of foods which are not heat producers. Cold weather brings with it a demand for fats, meats, and all those foods which give warmth as well as nourishment. Demand for agricultural products is more inelastic than is that for most other products. Very little can be done to stimulate the consumption of food, as compared with other products. Man needs a certain amount of food in order to subsist. The required amount

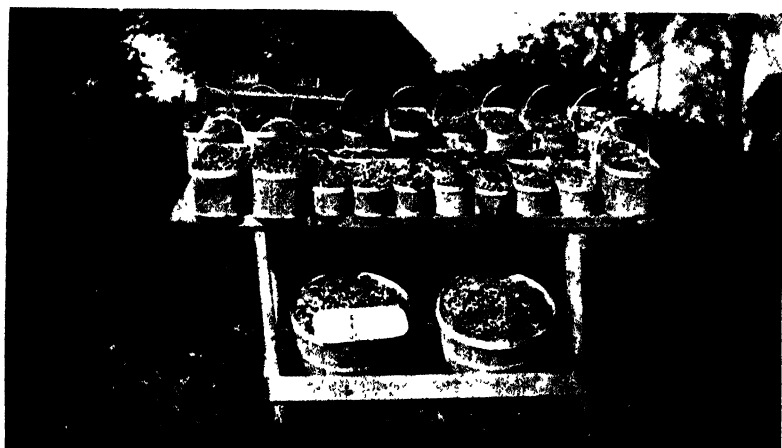


FIG. 36. — The presence of many roadside markets stimulates the demand for fresh fruit.

is quite definite and fixed. If the amount available is decreased to any considerable extent, there is apt to be a decrease in the efficiency of the labor and the health of the people. It is not possible to cause much increase in the amount of food consumed. A given number of people have an almost fixed consuming capacity. It is quite true that if the purchasing power is increased, a different quality of food may be consumed, only the best used, and the poorer grades discarded. It is quite probable that, if the income of the people is sufficient, less attention will be given to the element of waste. Because of this waste, the demand in the market would be greater. This would result in an increased con-

sumption because of waste, and not because of utilization. This kind of increase is one which is not desirable and, no doubt, is of little significance. Demand for agricultural products, especially foods, is relatively inelastic and not capable of great increase.

On the other hand, the demand for most products of the factory (other than food) can be greatly increased and is limited only by the desire and ability of the consumer to pay the bill. I need sufficient food to sustain my vitality; much more than this is of practically no value to me. If my income will permit, I shall buy a book. There is virtually no limit to the number of books I may add to my library if I have the means with which to buy. One magazine might be considered a necessity. As purchasing power increases, more will be added. Clothing, furnishings, pictures, automobiles, and numerous other things might be added one after another as ability to purchase becomes greater. As ability to pay increases, the number of houses demanded may not greatly increase, but there will be an increase in the demand for larger and better houses; and the same is true with furniture, to a certain extent. New demands come with increased wealth, and the field for the dealer in non-food products is limited only by the purchasing power of the consumers and their desires. As man becomes accustomed to enjoying certain things, such as good clothing, houses, furnishings, automobiles, art, music, books, various kinds of recreation, travel, the theatre, and social functions, his desire for them increases. It appears that there is no limit to the number or quality of such things which man can utilize. Enjoyment and knowledge, then, increase the demand for such products, and there is an almost unlimited field for the extension of business in these lines.

On the other hand, we find no such possibility in the case of food products. Man learns to eat and, if he is a normal man, the practice of eating does not increase his desire to eat. There is a limit to the amount of food which

man can advantageously consume; there is therefore a limit to the amount of food which can be sold on the market. It is impossible to create additional demands for food products in total. A community will consume all the food it needs if it has the ability to purchase it. Added purchasing power will be utilized in securing products other than food.

Increasing Demand by Advertising. — To advertise is to make things known. Modern advertising is carried on through many media, such as the printed page, signs, displays, and personal representatives. The primary purpose of advertising in the modern business world is to increase the amount of custom which a business firm enjoys. From the practical standpoint of business, it makes very little difference whether this increased business is the result of additional demands on the part of the consuming public at large or whether it is the result of diverting customers from other sellers to the advertiser. Many advertisers now realize that in order for their business to prosper in the proper way the demand should be increased. A vast amount of advertising is therefore designed to increase the demand for goods. Advertising of such products as paints, safety-razors, radio outfits, musical instruments, books, talking-machines, household appliances, automobiles, labor-saving devices, office equipment, and others of a like nature, primarily results in an increase in the total demand for these goods. This is demand-creating advertising. It is to a certain extent educational. On the other hand, there is a type of advertising which is primarily intended to attract the customers from other places of business, or from other goods to those of the advertiser. Such advertising might be termed acquisitive.

Demand-creating advertising is very effective if the total demand is capable of being increased. However, in the case of food products, very little, if anything, can be done in increasing the demand for the total amount. It is quite doubtful whether a great advertising campaign could pos-

sibly increase the demand for *all* food products. This is true because the amount of food which is necessary is rather definitely fixed. The proper amount will be consumed if the consumers have the money with which to buy.

At the present time there is evidence of a belief on the part of many that the farmer should adopt *business methods* and go into the markets of the world in the same manner as the trader and manufacturer. Proof of the advisability of such a course is offered in the experience of those who grow such products as citrus fruits, raisins, prunes, and cranberries. Without a doubt, advertising has greatly increased the consumption of such products and, from the standpoint of these growers, has been a valuable procedure. This type of advertising certainly increases the demand for the products advertised, but at the same time it *decreases* the demand for other food products. The total consumption of food products is not increased. If adequate statistics were available, we should no doubt find that consumption per capita of other farm products decreased, taking into consideration buying power, while that of advertised products increased. There has been much publicity concerning the value of certain foods. We have been told that meat is bad from the standpoint of health and that we should eat less meat and more fruits and vegetables. The vitamins have been introduced to the public and vitamin-bearing foods have been recommended. This publicity has certainly caused the demand for fruits, vegetables, and dairy products to be greater than it would otherwise have been. However, with the increase in the demand for these products has come a decrease in the demand for other foods.

It is very probable that a type of advertising intended to direct consumption into other channels is desirable from the standpoint of the public at large. No doubt, we have not yet learned to eat properly. A properly balanced diet is quite essential to the health of people, just as truly as to that of livestock. If we are consuming the wrong kinds of

food, we should be advised wherein we err and be taught to select the proper kinds. With a proper selection the expense of food might be materially reduced; however, it is quite likely that if a proper selection is the result of expensive advertising, food costs will rise instead of decline. It is folly to suppose that the demand for *all* food products can be increased by advertising. The orange grower competes with the grower of grapefruit, prunes, berries, peaches, and cantaloupes. If these products are used at the breakfast table instead of cereals, there is competition with the grain farmer. If the breakfast menu includes fruit and cereal, less meat and eggs will be used. So, even though it is possible to direct consumption along particular lines, it is impossible — and likewise undesirable, provided everyone is well nourished — to increase the total amount of food consumption.

No such condition prevails in connection with other products. Demand for products other than food is susceptible of increase and advertising is a very effective way to increase this demand. Demand can be increased only in case the consumer secures knowledge of the good and what it can be used for. Advertising will give this information. It is impossible to increase the total inelastic demand for food. The rather elastic demand for other products can be greatly increased, provided the consumer is able to pay the price.

Advertising of food products is also desirable and performs a very valuable service in advising the public of the time when fresh fruits and vegetables will enter the market. Such advice will permit the housewife to select the things which the market provides and thereby vary the diet. Information which the consumer has of the movement of food products will aid in the quick distribution of the goods and thereby insure a fresher and better product. Advertising is a valuable service in many respects, such as directing consumption properly and assisting in moving the product more

rapidly through the market, thereby decreasing the amount of waste. It is quite unfortunate, however, that some leaders in agricultural marketing hold forth the hope that *all* farmers can increase their business through advertising. In the last analysis, the whole problem of advertising and marketing should be viewed from the standpoint of the best interests of the consumers rather than from that of the profit of those who are engaged in growing or marketing the good.

The world market is relatively new. Only recently has the market area for fresh fruits and vegetables extended beyond the producing locality. This widening of markets has had a disrupting influence on market conditions, and it will take time for the public to become adjusted to these new conditions. This adjustment should be guided by adequate information, based on facts secured in the light of the interests of society at large, rather than from the standpoint of the individuals directly interested in profit. The whole problem of food distribution is a world-wide economic and social problem, one of vital interest to the public, and should be freed, in its broader aspects, from the profit motive of small groups.

Export Demand. — The demand for a product is not limited to the country in which it is produced. Foreign demand enters in wherever the product is of such a nature that it can be successfully taken to the distant market place. Most non-perishable goods are of this nature. Their bulk should not be great enough to make transportation too costly and their price prohibitive in distant markets. Perishable goods, because of new methods of handling and refrigeration, can be carried greater distances, and in many instances enter into markets across the seas. The non-perishable farm products, the cereals and cotton, and manufactured goods are most suitable for the foreign market. The market for food products in a foreign country is less capable of development than that of other products. It is evident that the total food requirement of the world is rela-

tively stable, as is that of any particular country, while the demand for other products may be greatly expanded. Great development of the market for non-food products may be expected in foreign countries, if competition can be met. The foreign market for non-food products is, of course, susceptible to fluctuations of demand due to increased or decreased buying power. Export demand for agricultural products is quite variable because of the varying supplies available in other exporting countries. Good crops in other exporting countries cause a large quantity of produce to enter the world market. The export market is not a very dependable one. American agriculture cannot place itself on a very stable basis if it counts too strongly on a foreign market.

CHAPTER XI

CORRELATION OF SUPPLY AND DEMAND

When goods flow to the market in excess of the needs of the public a condition of instability results. It is in the interests of producers and consumers alike that markets retain stability. An irregular flow of goods causes wide price fluctuations, resulting in losses to dealers and an undesirable effect on buyers. Goods should move to the market places in accordance with the need for them. An excess of the needed amounts causes low prices and wasteful consumption. A shortage in the market place causes high prices and unsatisfied needs — in some cases actual want.

From the standpoint of the producer or seller of goods, the market should be stable and supply should never exceed the needs of the market. Supply should never exceed the demand at a price which will give an adequate return to the producer. However, it is to be emphasized that an adequate return to the producer does not necessarily mean a return which will result in a profit. Profits depend not only upon the price received but quite as much on the costs of operation. The price which the consumer pays for an article might be so high that it is really out of line with the prices of other products, and yet the producer may not make a profit on his operations because his costs are too high. The amount of profit which a producer makes is not an infallible test of the equity of the price. In the interests of the consumer, the supply should never be below the point which will assure him an equitable price and sufficient quantity to meet all reasonable requirements. The quantity of wheat, potatoes, or beef available during a certain year should never be more than the amount which society requires to satisfy its needs. All productive activity should

be so directed that society receives the proper quantity of goods to satisfy its wants. Some goods can be held over until there is a need for them if the immediate supply should be in excess of demands. Such goods are the non-perishables. The perishables, however, cannot be held over any great length of time, and the amount of production in excess of what can be used is therefore lost. This results in an economic loss to society at large, for it represents economic effort which brings no satisfaction.

The production of economic goods is under the control of men who operate primarily for private gain. Unless the conditions of the market are such that gain results, financial failure follows. Every business enterprise should be interested in maintaining a stable market. Stable markets are possible only when production is in harmony with the needs of consumers. Or, to state the same fact in different words, stable markets are possible only when there is harmony between supply and demand. The market should be "fed" in such a way that price remains at the proper point, so that the business enterprise will bring an adequate return to the efficient producer.

Control of Supply. — One way by which the seller, or the group of sellers, dealing in any product can secure this harmony of supply and demand, is by controlling the supply. If goods are put on the market in the proper quantities the supply will never get ahead of the demand. There are very few products which are apt to be put on the market in quantities in excess of what can be sold at some price. It happens frequently, however, that the supply on the market is so great that it cannot be sold at a price which will bring a sufficient return to the seller to repay him for his sacrifices. This is a condition which the seller attempts to prevent. So long as this control of supply, or the control of the flow of goods to the market, does not result in exorbitant prices to the consumers or in unfair profits, it is legitimate and it is in the interest of society that it be done. Control of supply

to maintain stability, which is fair to both seller and consumer, is desirable. "Fairness" of prices, however, is a very indefinite thing.

Producing to Meet Demand. — It is quite essential that there be some measure of control of supply in all industries. This control may take no other form than that of trying to "sense" the demand of the market and producing in sufficient quantity to meet that demand. It is known that there is no need for a yearly production of twenty-five million automobiles in the United States. The world does not need ten billion bushels of potatoes, or wheat, or corn each year. Nor is there an annual need for two billion glass-cutters, though it would be possible to manufacture that number. No such quantities of these goods are produced and put on the market, for price tends to keep production more nearly in harmony with the needs of consumers. An important function of price is to direct production in such a manner that the required supply will come to the market. If too much effort is directed toward the production of some goods, prices decline, and losses incurred by producers will cause them to decrease their operations. If a sufficient quantity is not being produced, a high price will draw forth more of the product needed.

How Supply is Controlled. — The dealer who sells the product to the consumer is the one who learns at first hand just how well supply and demand are balanced. If goods move from the dealer's shelves freely and he finds it hard to replace his stock, he knows that the supply is short in comparison with demand. If, on the other hand, goods do not move at the prices that are necessary for him to maintain his margin of profit, he refuses to order more goods from wholesalers. This let-up in business is passed on to the producer. The producer must then restrict his production or accumulate stocks. Those types of industries which do not have a high overhead expense and whose greatest outlay is for raw materials and labor can shut down on very

short notice. The industry, however, which has a very heavy overhead or will suffer great loss by ceasing operations must continue in business at approximately the same rate. Such concerns must let stocks of goods accumulate and must feed the market as required. If production should continue at the same rate and all the product be put on the market, the price would suffer a marked decline. To continue operations and hold the product off the market requires great financial strength. If such a practice is necessary for any length of time, many of the weaker concerns will not be able to stand the strain.

The Case of Agriculture. — Agriculture, by its nature, is a business in which operations cannot be greatly curtailed when the market becomes unfavorable. In times of depression it is not so much a question of making money as it is of avoiding the loss of money. The farmer has a plant which must be kept in operation or there is no return. He cannot discharge his labor, for in a great many instances his labor supply consists of himself and his family. He cannot discharge himself except in instances when he can do better by letting the farm lie idle and going to work as a laborer in industry. Nor can the farmer accumulate stocks. In most cases his product must be sold when it is produced. One reason for this is that he seldom has the finances to hold it. Furthermore, since agricultural operations are not materially decreased during such times, a hold-over would merely result in making conditions worse in the following year.

Some of the farmer's products are perishable and cannot be held for a more favorable market. The dairyman supplying milk for the city market must sell his product from day to day. It is not feasible for him to cease operations as he has a herd which has taken years to build up and, with conditions in the milk market as they are, he cannot find a market for his cows. He is placed in a position where he must continue operations, sell all the milk he can, and at-

tempt to make both ends meet by reducing his costs as much as possible.

The fruit grower has an orchard which has taken years to come into bearing. He cannot stop production just because prices are low. If he lets his trees go untended, he will lose the investment he has made. This investment must be taken care of; the trees must be pruned, sprayed, and kept in the best possible shape so that production can be continued when prices recover. The product from these trees during the years of low prices must be sold when harvested, for perishable fruit cannot be held over from one year to another. To stop production would cause a complete loss of investment and the ruin of the business.

So it is with other specialized farming. If the farm is equipped to produce certain products, it is not easy to change the type of production when prices become unfavorable. Production must continue, and every effort must be made to keep losses as low as possible. Agriculture is an industry which cannot count on a profit each year on every individual enterprise. It must be considered from the long-time viewpoint. The farm as a whole, instead of each individual crop, must be considered. The losses of poor years must be made up during good years. If they are not, then the farm is unprofitable, and eventually operations must cease.

While it is impossible for the farmer to cease operations when a bad year comes, it is not entirely impossible for him to exert some control over the supply of products which enter the market. A very systematic study should be made of market demands and the trend of these demands. Short-time changes in agricultural production are not feasible; but it is entirely possible and necessary that the farmer study his market as the manufacturer does, and attempt to place on the market the things consumers want in the quantities desired. The time has passed when the farmer can produce the things he wants to produce and expect someone to come

along and pay him the cost of production plus a fair profit. Science has made it possible to produce sufficient agricultural products so that there is plenty to meet the demands of the hungry world. In agriculture, as in industry, the great problem is now that of selling. In order to sell to advantage, the seller must supply the things desired in the manner desired. The farmer must study demand and gauge his productive activities to meet that demand. This demand must be met in quality as well as quantity. The cornerstone in the improvement of agricultural conditions is a study of demand.

Not Easy to Control Agricultural Production. — It is not possible for man to work with Nature and always secure the amount and kind of product he desires. Nature is fickle and will not always conform to the wants of man. Man with the aid of machinery can produce with precision and can foretell the amount and quality of finished product which will come from a given amount of raw materials. The supply of produce from the factory can be definitely controlled, while that from the farm cannot. However, by the selection of proper varieties of good seed, by following scientific methods of culture and insect and disease control, and by the cultivation of the proper acreage, man can keep production within certain limits. The quality of the product should receive more attention than is now given to it, and more consideration should be given to those productive practices which tend to decrease the unit cost of production.

If agriculture is to be a profitable business, it is necessary that the market be not flooded with produce which will tend to keep the price below the remunerative point. This implies that farmers should make a study of the quantities of produce needed and attempt to produce in harmony with that need.

Effect of Disorderly Marketing. — Market instability is caused by production in excess of the needs of the consuming public. If the "potential" supply is too great, there will

normally be a depressing effect on the market. If the actual supply coming into a market is too abundant to meet the immediate needs, price will be forced down even though the potential supply is small. This is especially true in the case of perishable products or in cases where the supply flowing to market over-taxes the facilities for handling the product. A short wheat crop will tend to cause a high price, but if wheat is sold so rapidly after harvest that transporting and storage companies have difficulty in handling it, the immediate price will be depressed. It sometimes happens that the price of cattle is depressed in certain markets while it is high in others, because there is an over-supply in the one and not in the other. If more cattle come to a market than can be handled, price must be lowered in order to stop the flow. Markets for perishable products are often glutted, and the result is a low price even through there is no excess in the total supply of the goods. This is a case of the immediate supply being out of harmony with the immediate needs of certain markets.

To obviate such a condition of temporary over-supply in the market, goods should flow with regard to demands as to time and place. Much can be done, and has been done, to prevent these gluts, by making a study of the goods moving to market and the demands of the market. Produce should flow to the market which needs it. The flow of goods should not be so fast that the "suction of demand"¹ in the market is destroyed. An irregular flow of goods often causes gluts at one time and an actual shortage a short time afterwards. Such variation results in very low and very high prices.

Producers of perishable fruits and vegetables must know where their products are wanted and see to it that these get to the market at the time needed, if society is to be able to utilize them to the best advantage without waste and a resulting financial loss to the growers. One of the main func-

¹ See G. B. Dibblee's "Laws of Supply and Demand," p. 150.

tions of a market news service is to assist in the regulation of the flow of produce.

The flow of non-perishable products should be regular and just strong enough to maintain the suction of demand. Wholesale buyers of farm produce reduce the price paid to farmers when marketing is rapid enough to overtax the

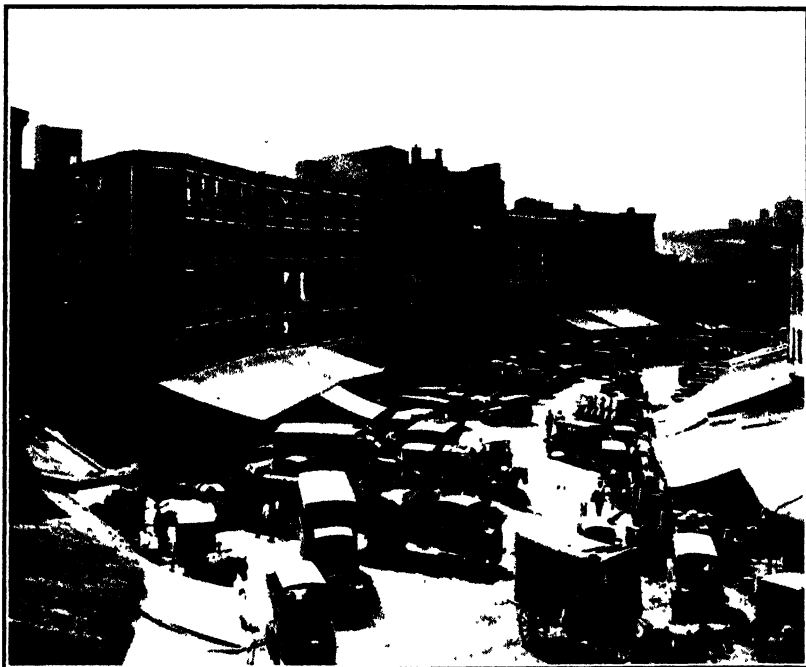


FIG. 37. — Produce must be handled many times before it reaches the consumer. (Courtesy Bureau of Markets, New Jersey Department of Agriculture.)

market machinery. This causes prices to be depressed and lowers the income of the farmer. The lower price is paid for two reasons: to discourage the flow to market; and to satisfy the desire of the dealer to buy for less if he can. When goods are being offered so rapidly, it is natural that buyers quote lower prices in an attempt to secure goods for less. If farmers were a little slower in putting their product

on the market, dealers would offer higher prices in order to stimulate marketing.

These wholesale dealers in farm produce do not permit their market to be depressed, if they can prevent it. They will regulate the flow from their wholesale market to the manufacturers or retailers so that sales will as nearly approximate needs as possible. By so doing they will be able to maintain their prices and make greater profits. These greater profits are, to a certain extent, the pay they receive for holding the product until needed by the market. They are performing a service which the farmer does not perform, and they get the reward.

However, in the case of perishable produce, it is impossible to withhold the goods from the market in order to maintain price. Fruits and vegetables in most instances are placed on the market as they arrive, since it would be impossible to hold them over until a future time, because of their perishability, and because of the great stream of produce which is already flowing to the market. If prices of peaches are low to-day, it would be impractical to hold the fruit off the market until to-morrow as, during the season, more peaches are already on their way to market. If to-day's supply is not sold and out of the way, a greater depression will occur to-morrow.

Effect of Sending Only Best Quality to Market. — One very practical and efficient manner of controlling supply, which could be practiced by farmers, is that of sending to market only the best-quality product. When the supply is large, it is useless to send to market more produce than can be utilized. At such times grading should be very strict. Only the very best quality should be started on the market journey. The poor-quality product should be left on the farm and utilized there as feed for livestock, or used in the home. It is a social waste to send produce from a point where it can be used — the farm — to a place where it will act only as a depressing influence on the market, especially

when a great portion of it may have to be carried away to the garbage pile. Those who cause such social waste are made to pay for their acts through a low price.

Coöperation as a Means of Controlling Supply. — The problem of controlling supply is one of vital importance. If it is legitimately done, there is a social gain and the interests of no class of society are impaired. The individual farmer who is selling produce on a market in which there are many competitors can do very little by himself. It is almost impossible for him to make a study of the demands of the market. Very few farmers operate on a large enough scale to warrant their going to the expense of making such a study. The information gathered by governmental agencies does not always reach the farmer, and many farmers are not capable of making a proper analysis of it when it is received. When the information goes forth that the production of wheat is in excess of the needs and that a reduced acreage is advisable, it is very difficult to get farmers to act upon this advice. In many cases they think that it is given for the purpose of misleading them and thus enriching dealers at their expense. Again, many farmers reason that since there is an effort to reduce production, the supply will probably be short next season and prices good. If such is true, it would be a wise plan for them to increase acreage instead of decreasing it. As has been previously mentioned, it is very difficult to control the amount of production merely by changing the acreage planted. Nature is a very important factor in determining yields. Many times, decreased acreage brings forth a larger total crop. The farmer is an individualist. He plans his enterprise as he sees fit. There are so many farmers that it is hardly feasible to control the amount of production by sending out advice.

The same limitations also apply in regulating the flow of produce to market after it has been harvested. Individual desires and needs of farmers are of such importance in determining the time and rate of marketing that advice to

market in a more orderly manner has very little influence.

In many industries, the evils of over-production and disorderly marketing were recognized long ago. To overcome these evils, combinations were effected. In cases where economies were to be secured from large-scale operations, consolidation of plants took place. The primary purpose of these combinations was to temper competition and prevent the irregular flow of goods which broke the market. Those combinations which have not taken undue advantage of their position and power have been of social value, since they have tended to regularize industry and stabilize markets.

There is a very similar movement among farmers at the present time. This is called the *coöperative movement* and has been looked upon in a very different light from that of combination in industry; however, the primary purpose of the two is the same. In agriculture, competition, disorderly marketing, and the production of things consumers did not want have caused the rewards for service to be very slight. Far-seeing farmers realize that these unfavorable factors must be eliminated if agriculture is to be a profitable business. Combination — or coöperation, as it is called — is intended to be of very great assistance in accomplishing this.

This coöperative movement in agriculture, if properly directed, is not one to be feared by other classes of society but rather one to be encouraged. Coöperation should bring stability to agriculture and permit farmers to do collectively those things which cannot be so efficiently done individually. Some things which can be done better collectively are:

1. Study of market demands — as to quantity and quality.
2. Grading, packing, and preparation for market.

3. Storage (in some cases).
4. Financing.
5. Experimenting in methods of production.
6. Dissemination of information.

In agriculture, as in industry, it is quite essential that production be carried on with due regard for the demands of consumers, and that the product be put on the market at the proper rate, so that gluts or shortages will not occur. In the industrial world, concerns are managed, in most cases, by men who devote most of their time and attention to problems of management. The farmer is manager and laborer. Farm operations are on a small scale and the enterprise cannot afford the expense of specialized management. The industrial manager realizes the importance of studying his market and his selling problems. The farmer, on the other hand, devotes practically all of his time to the problems of production.

Since selling is becoming as important a factor in agriculture as it is in industry, it is necessary that the selling or market problems of agriculture be given more attention. Farm products must flow to market more in harmony with the demand for them, if prices are to be kept at the point where farming is remunerative. Because of the nature of the business, agricultural operations cannot be decreased to any great extent when business depressions come. Lack of finances prevents the holding of goods off the market. Ignorance of market conditions hinders the farmer in selling at the right time and place. Lack of knowledge of market demands causes production to be guided only by the individual desires of the farmer. Inability to control accurately the amount of production causes the whole problem of control of supply to be more obstinate.

Much can be done to assist in the problem of coördinating the supply and the demand of the market by a comprehensive study of the whole market by groups of farmers.

Coöperation will enable farmers to do some things which they could not do individually. By coöperation certain problems of production and marketing can be studied and more efficiently handled. One fundamental is that farmers must produce and market in accordance with the demands of the market. Coöperation can never control price; it can, however, make the flow of produce to market more orderly and bring about productive economies.

Manipulation of Demand. — A scale can be made to balance by adding more weight to one pan or taking off weight from the other. If the stability of the beam be likened to the stable price which is to be desired in the market, this state of stability can be brought about by controlling the amount of weight put into the "supply" pan. If supply is heavy and the stability disrupted, fewer goods can be placed on the market. However, the same result can be accomplished if more weight is placed in the "demand" pan. To maintain market stability, the relationship between supply on the market and demand for the product must be such that price will settle at the proper point. By either decreasing supply or increasing demand this condition will result. Hence, man in every line of business is attempting to control the gates of supply so that the flow of goods will be such that price will not fall and threaten profits. The profit incentive in business is a force which makes all who have goods to sell endeavor to maintain price.

As has been indicated in the discussion on control of supply, many difficulties arise which make it impossible to maintain price at the desired point by control of supply. In some lines of industry it is almost impossible to have control over supply to an extent sufficient to bring this about. This is especially true in the case of agriculture. When such difficulties arise, the seller of goods turns his attention to the demand and attempts to manipulate it so that the same results will be accomplished as if the supply had

been controlled. In most businesses these processes of controlling supply and stimulating demand go hand in hand. When business is expanding, it is quite natural that the attempt be made, not to curtail supply, but to increase demand in order to give stability to the market.

For an industry, as a whole, the effective manner of increasing demand is to advertise. Advertising is a force in modern business about which we know very little at the present time. We do know, however, that it increases business and that the concern which does not advertise is, as a general rule, lost in the race after profits. Particularly in the case of a new product, advertising of some sort must precede sales. Demand is essential to a sale, and demand can never exist unless there is a desire to be satisfied. There can be no desire unless there is knowledge; therefore, the existence of the good and what it will do must be brought to the attention of the possible buyer. This type of pioneer advertising is educational and, if the product is of the right type, socially valuable. The self-binder, typewriter, electric iron, adding machine, automatic machine drill, and such products provide a service which is of value. Man would not have bought such products, however, unless he had been advised of their existence and educated as to their use. This has been done by advertising. Demand has been created and thereby a market provided.

There are some products which have always been known to man, but the demand for them has not been sufficient to maintain those conditions in the market which sellers desired. Since the beginning of time, it has been known that milk is a good food. Very little effort was taken in the development of the milk market until production began to catch up with unstimulated demand. Recently, educational campaigns have been carried on in order to increase the use of milk. These campaigns have, for the most part, been inaugurated by health authorities and not by the producers

of milk. The consumption of milk is gradually being increased. Milk market stability resulting from increased demand is much more to be desired than that resulting from decreased supply.

It is through advertising campaigns that the growers of fruits and vegetables hope to bring stability to their markets by increasing demand. Already the consumption of oranges, prunes, raisins, grapefruit, lettuce, and other products has been greatly increased by advertising. Such advertising is based primarily upon appeals on the basis of healthfulness.

The possibility of maintaining price by influencing demand is very great in the case of some products. The demand for manufactured products, other than food, is capable of being increased greatly, the limit being subject only to the purchasing power of the people. In the case of food products, demand in the aggregate cannot be very greatly increased. Some agricultural products, such as milk, fruits, and vegetables, are subject to very great increase in demand; but such increases will decrease the demand for other kinds of food. Demand can be increased by advertising, but a point will ultimately be reached where the possibilities of further extension are very slight. Advertising at this point becomes the agency whereby the custom of one concern is transferred to another. Advertising then becomes not a means of stimulating demand for the trade as a whole and maintaining price, but a means of increasing the sales of one concern. Such manipulation of demand cannot have a stabilizing influence on the market. The only means of bringing such stability about would be through the control of supply.

On the whole, agriculture will have very serious difficulties in influencing demand to any marked extent. Fruit, vegetable, and milk producers have vast possibilities along this line. Such demand stimulation will take a long time for full development and will not be very effective in cases

of temporary declines in market price. Stability of the agricultural produce market cannot be assured by manipulation of demand. However, there are possibilities of stabilizing the business of individual farmers or groups of farmers by the creation of a demand for their particular product in certain markets.

CHAPTER XII

MARKET INFORMATION

A fair exchange is not likely to result from a meeting of sellers and buyers unless both sides have the same amount of information concerning the condition of the market. The most important information necessary in bargaining in the large markets of the world is that concerning the extent and nature of the demand and the supply.

In the agricultural market, much material has been gathered bearing on the supply side of the problem. There are the forecasts of yields, condition of crops, acreage estimates, weather forecasts, amounts held in storage, and intentions to plant, which are for the purpose of giving the farmer, trader, and consumer as reliable information as possible concerning the real or potential supply. The farmer has not utilized this information as well as he might. Governmental reports have been of great value to agriculture, in spite of the fact that traders have studied them more diligently than have the men on farms. The trader has received, no doubt, a greater benefit than the farmer from this information, for the reason that he has made more use of it. Agriculture, because of lack of organization and inability to properly analyze these supply statistics, has not been able to utilize to the best advantage the service which has been offered. We are progressing very well in securing information on the supply side. These reports by the Department of Agriculture should be studied and interpreted more carefully by farmers.

On the demand side of the market, however, we have done very little to secure facts. This is due quite largely to the circumstance that it is more difficult to measure demand than supply. The farmer has known practically nothing

about demand. Industry does not know as much as it should, but the shrewd trader has studied demand and is better able to estimate it than the farmer is. The trade has the advantage when it comes to the demand side of the market. The task for the farmer is to make a study of the demand for his produce so that he will not be at a disadvantage when he goes to the market place. If one is to sell in a market, he must know what the market wants. A study of demand is the basis of improvement of the agricultural market. Demand must be known by the farmer, not only to put him on an equal basis with the trader, but also to guide his production in such a way that it will give him a market for what he grows. It is in the interest of society, also, that the things which it wants be produced instead of things which cannot be utilized.

The Kind of Produce Wanted. --- No market can be supplied with the things required to suit its demands unless the producer knows what these demands are. Successful manufacturers and traders are always seeking out information about the market. They are trying to determine what makes this or that product sell; why this article brings a higher price than that one. It is more economical for the seller to sense demand and try to meet it than to attempt to change it. Only in those cases where the seller does not have the product already demanded, or where he is attempting to place a new article on the market, does he need to develop a new demand. The creation of demand is an expensive business. Whenever it is possible to supply goods already demanded, the seller has a distinct advantage in his market program.

The first essential for successful selling in a market is to determine what that market wants. One market may want one kind of product; another may want something quite different. In Boston, the brown egg is desired; in New York, the preference is for the white. The seller of eggs will be wise to provide the people of these cities with the

kind of eggs they want instead of attempting to change their desires.

As industry has attacked the problems of production and applied science to them, so must we apply the same methods to the problems of the market. It is not scientific to attempt to produce crops in an unfavorable soil and climate. Farmers who have settled new countries have attempted to grow the crops they were accustomed to in their former homes. The poor results which they obtained year after year have caused them to change the kind of products grown, if unsuitable ones were selected in the beginning. Agricultural science has been of great assistance in analyzing soil and climatic conditions and in selecting the proper crops for different communities. The development of agriculture has not been entirely haphazard. The "plant and try" method of crop selection has been an expensive one, but in the course of time it has been quite effective in the elimination of those crops which were not suited to climate and soil conditions.

Since agriculture has changed from a self-sufficing to a commercial enterprise, it is necessary that the sole test of what should be produced in a locality must not be the amount of production possible. Agriculture as an industry is not carried on now for production purposes only, but is operated for the markets of the world and the millions of consumers located in different places. It is, therefore, essential, if the industry is to be successful, that production be conducted with due regard for the needs of the market. Before the marketing of agricultural products can approach that degree of efficiency which is desired, it is necessary that the market be studied scientifically. This involves what has been called market analysis.

In making this market analysis, many things must be done. The first essential is to determine what the market wants — what is the demand. Some markets want some things; others want other things. Because of the dietary

habits of certain people, a given product might not sell in their market at all, whereas it might be in great demand in other sections. People in the Northern states are not accustomed to eating watermelons. They do not know what good melons are. The per capita demand for this product is not so great as it is in the South, where an appetite for a real melon is acquired before the consumer learns to walk. The sweet potato is an important article on the Southern *menu*, because the Southerner has acquired a taste for it. In Boston the white bean is used more extensively than it is in the South. Along the New England coast, clams are a choice dish, while in the semi-arid sections of the Middle West, clams would not be readily obtainable. Aside from the usual exceptions, the seller of produce is most certain to attain success by meeting the demand as it exists rather than by attempting to change it to suit the product which he has for sale. The purpose of all production is consumption; therefore, it should be directed to meet the desires of the consumer.

There are different grades and types of particular products. Some markets demand one grade; some another. The appearance of the product has more influence than the flavor in attracting customers in some localities. Size is a factor which influences the sale of some commodities. Color and uniformity directly affect the actions of certain buyers. It is not enough to know that certain markets require potatoes or apples or oranges or eggs. The shrewd seller must know what qualities in potatoes, apples, oranges, or eggs the different markets demand. There is a wide range of difference in the demand for butter, meats, and lettuce.

In order to sell successfully, products should be sent to the market which offers the highest price. Farmers should learn the whims and fancies of the different markets and attempt to meet those fancies.¹ The best-quality products

¹ See U. S. D. A. Yearbook 1904, pp. 417-434.

should go to the market where they will sell to the best advantage, while poor-quality products should be sent to markets where less attention is given to quality. The greatest returns will come to the seller who takes his product to the market offering the highest price for that type of goods.

Concerning market demands, the United States Department of Agriculture states:

"It cannot be said that market demands are unreasonable. The standards demanded or preferred by the wholesale dealer are not to be feared. A few large consumers, such as railroad dining-car departments, hotels, and clubs, are willing to pay an extra price in order to obtain specially selected, practically perfect stock. . . . It is said at times the offerings of potatoes of this grade are not sufficient to meet the demand. Most growers, however, are more interested in the demands of the average consumer. This great class of buyers asks only for a grade of potatoes which is sound, free from culls or waste stock, and of good average size. The important point is that this class of consumers does not like to pay retail prices for defective, diseased potatoes or any commodity on which there is an unnecessary waste in preparation for the table. Deep-eyed potatoes are not so desirable as the shallow-eyed, smooth varieties. Dealers state that in addition to these two classes of buyers there is sufficient outlet among other classes of trade for good second grade potatoes.

"It is a mistake, then, for growers or shippers to force ungraded or poorly graded potatoes on the second great class of buyers, the average consumer who uses a large portion of the crop, for these potatoes do not meet the demand and will seldom return the grower as large a profit as will well-graded stock."²

Some fundamentals of successful marketing are given in a recent issue of one of our farm journals:

"In selling poultry, quality counts, and quality is secured not only by the proper growth of birds, but also in the manner of dressing and the method of shipping.

² *Farmers' Bulletin* No. 753, pp. 19 and 20.

“ Our American breeds — the Plymouth Rocks, Wyandottes, Rhode Island Reds and Jersey Black Giants — best suit our American markets. These breeds fit the requirements and tastes of our people, just as the Houdans, the La Fleche and the La Breese fowls suit the French epicures, and the Dorking, Orpington and Sussex meet the English demand.

“ For successful marketing, therefore, it is important that the whims of the market be studied before it is decided what breed to keep. Some markets call for small roasting fowls, others for medium, and still others for large. A selection must be made accordingly. Here, in America, the yellow-skinned carcass is in demand, while in foreign countries they want white-skinned birds.

“ The market, too, is largely influenced by advertising. That is, a better price may be obtained for ‘ Philadelphia roasters ’ in the Middle states, and for ‘ soft roasters ’ in the New England states, than for carcasses of equal merit selling under different titles. The buying public becomes prejudiced to a considerable extent. Our American epicures will not take to a white-skinned table fowl when it comes to poultry, but they are eager for white-skinned turkeys or other fowl. What’s the difference? I don’t know, but the whims of the buying public must be catered to or business stop.”³

Information concerning the wants of different markets is of vital importance to the farmers of this country. When this information is secured, attempts should be made to adjust production to the needs and preferences of the market. No great improvement will come in agricultural marketing until such adjustments are made.

Manufacturing industries with large amounts of capital and skilled specialists are capable of making an analysis of the market. For the farmer this is a very difficult task. In very rare instances is the individual farmer capable of doing this for himself. He does not know how to go about it. His business is not on a large enough scale to justify

³ “ Dressing Poultry to Win High Prices,” Michael K. Boyer. *The Farm Journal*, September, 1923.

such an enormous undertaking. The only feasible way of overcoming this difficulty is for farmers to do this work collectively. For the joint undertaking, farmers can secure the services of specialists to make an analysis of markets and, through proper organizations, pass this information back to the man on the farm, so that his production will be guided in the right manner.

This type of service should be of value to the consumer as well as to the farmer. It is in the interest of society as a whole that the proper goods come to market, and no good purpose is served if things not desired by buyers go to market. The farmers need information as to the requirements of the market. This information must be kept up-to-date, for the fancies of consumers are not always the same. Our habits as consumers are very apt to change in time.

While it is not possible for the farmer to change his type of farming with the changing whims and moods of consumption, a more intelligent marketing system will result if this information is at hand. The demands of the different markets should be known at all times and every effort should be made to meet them. Such a procedure would be more rational and should result in more nearly meeting the demands of the buyers than the practice of sending things to market without regard to the existing preferences. There is a great lack of this type of market information at the present time. An effort in that direction has been made by some of the large farmers' marketing organizations and by trade associations. Some information of this type is being provided by governmental agencies; however, nothing more than a small beginning has been made. As the great mass of farmers do not know about these things, it will be a large and difficult task to develop this type of work so that farmers may have the information they need. It is questionable whether this will ever be accomplished unless it is done through farmers' organizations.

The Quantity of Goods Needed. — Second only in importance to information as to the kind of produce the markets want is a knowledge of the amount needed. It was brought out in the chapter on Correlation of Supply and Demand that market stability cannot result unless the proper amount of produce comes to the market place. Agriculture is passing through a period of depression partly because the supply of farm produce is in excess of the demand at prices which will yield a favorable return. The



FIG. 38. — A producers' wholesale market in the fruit region.

market analysis should ascertain the quantity of different products needed in the different markets. This is a difficult task; many things must be taken into consideration in trying to arrive at the correct result. However, it is not altogether impossible to determine, within certain limits, the requirements of our people for the different products. We know, for instance, that 25,000,000 bales of cotton is quite beyond the amount which should be produced in the United States.

As customs change, the demand for different products changes. Even though this is a very slow process, it is worthy of consideration. The practice of eating more

fruits, vegetables, and milk and less meat should be taken into consideration in outlining a program for agriculture for the next ten or fifteen years. It is folly to wait until demand and supply are entirely out of harmony before changes in agricultural production are made. Growth of population, our immigration policies, and the composition of our population might radically change the demand for the different farm products during the next twenty or thirty years. Stability in agriculture should be considered far ahead, so as to enable us to meet the emergencies when they occur. Science is delving into the problem of proper diets and agriculture should be ready to meet the new demand when it comes.

The emphasis placed on the value of milk as a food will cause its consumption to be greater in the future than it has been in the past. In the interest of society, it is essential that this demand be anticipated and preparation made to meet it. It would be unwise to assume that the production will take care of itself. Individual dairymen might increase their output, but if this increase is not guided by understanding there is a possibility of over-expansion in production and of a serious reduction in the net income of the dairyman. In its turn, this may cause a depression in dairy production and may lead to a shortage of milk and other dairy products. Unduly high prices will be the result.

How many apples will the market require in 1935? Orchardists will face uncertainty and loss if they fail to plan production in the light of all the facts obtainable. The consumer also is likely to suffer when production is haphazard and not guided by all the information obtainable. Will the wheat-producing sections of the world be able to supply the wheat needed in the future at prices which will not be exorbitant? Shall we let production continue to be guided only by the fluctuating market? We need, both as farmers and consumers, all the information obtainable to guide pro-

duction along the proper channels, so that stability will be the result. It is wasteful to produce more than sane consumption can utilize. It is dangerous to produce less than consumers need.

It will be very difficult to secure the amount of agricultural production which scientific analysis indicates as proper. As stated in a previous chapter, the farmer is an individualist and will manage his farm much as he sees fit. The quantity of production cannot be regulated on the millions of farms as easily as it can be in the factory under single control. Nature does not respond as readily to the desires of man as do machines and raw materials. The problem will be one of education among farmers and the application of more scientific methods of production. However, in spite of all the difficulties to be encountered, the amount of production over a series of years can be made to approach more nearly the demands of the market, if information concerning probable demands is available. This is a problem of as much importance to the consuming public as it is to farmers.

The Quantity of Goods in the Different Markets. — The foregoing discussion related to the demand for products over a long period of time and the planning of production to meet those demands. In the case of many products, particularly the perishables, the quantity in the market at any specific time is one of the most important factors influencing price. It is essential that produce flow to the market in quantities which can be utilized, either by dealers or consumers, if price is to settle at an equitable point and the public be enabled to utilize the supply to the best advantage. There is no good purpose served if more peaches, poultry, or grapes go to a market than are required. There should be a distribution of the produce of the farms to the places where it can be used to the best advantage. Price depressions in a market are evidences that the supply is greater than that market can properly absorb.

If orderly marketing is to result, the shipper must have information as to the quantities in the different markets so that gluts will not occur. This type of information is now being supplied by the United States Department of Agriculture. Every day during the shipping season, a report is made of the number of cars rolling to the different markets. Railroads permit the diversion of cars from one market to another if the shipper desires it. Some of the large farmers' marketing organizations get reports on the number of cars rolling, sales in the different markets from day to day, weather conditions and forecasts. They are thus enabled to effect a better distribution of their product. Many private dealers have long been conducting their business in the light of such facts, and for this reason have been more successful than the uninformed shipper. Such a procedure greatly reduces the risk of market gluts and permits a distribution of produce to the places where it will find a more favorable market. Real marketing information is essential to the proper utilization of perishable products.

Concerning the importance of market information, the United States Department of Agriculture says:

“Traveling by faith rather than by sight has sometimes been recommended as wise policy, but produce growers used to find it frequently and mightily disastrous when they followed it perforce, before the establishment of the Crop and Market Reporting Service of the United States Department of Agriculture. Of course, some of them are still following the faith system of growing and marketing because they have not seen fit to use the eyes furnished them by the Government reporting service, and these are still planting, gathering, and marketing at random. A constantly increasing number, however, are looking around and ahead, seeing what other sections are doing, finding where any shortage or surplus is likely to be produced, ascertaining special advantages or disadvantages in consuming centers, and generally getting a forecast of the market from crop and other conditions, the country over. Thus the more far-sighted southern potato growers take into account the vol-

ume and probable movement of the northern crop and the amount of the old crop likely to be left over until spring. Even the northern growers may put in a late acreage and top-dress the crop if the general situation suggests a shortage caused by a reduced acreage or by a hard spring frost in parts of the northern territory.

" Texas onion growers use every means to ascertain the amount of old northern stock in storage and the rate at which it is going to market. The southern growers of cabbage, celery, and other special crops make similar calculations. Orange growers in Florida and California judge the outlook as affected by the probable supply of northern apples during the winter and spring seasons, and the northern orchardists are interested in the citrus-crop prospects as affecting the demand for northern fruit.

" Producers of hothouse crops also have a similar general problem. Said a well-known eastern lettuce grower some years ago, before the Government crop and market reporting services had been developed: ' I would give \$500 a year for quick news of the acreage and condition of southern lettuce.' He could hold back his crop or advance its maturity considerably by a variation in greenhouse management. When news of a destructive freeze in the South reaches northern growers of hothouse products, if they are on the alert, seed beds and moisture are promptly regulated to take advantage of the shortage soon to occur, while nearby box dealers at once look up available supplies to meet the coming emergency. Unexpected weather conditions may enable a damaged crop to recover quickly or may destroy a promising outlook, but in the long run the comparatively few growers who study country-wide conditions are likely to come to good markets with large crops more often than the average growers.

" The majority of growers are likely to plant more or less unconsciously by the past rather than by probabilities. For this reason, a crop that paid well one season is likely to be overplanted the following year. Thus the short and high-priced potato and onion crops of 1916 were followed by very heavy planting in 1917 and also by liberal planting in 1918. The short bean crop of 1916 was followed by a great increase of acreage in each of the two following years. The rule to plant lightly after a bad crop and

heavily after a large one, is not always safe, but it has proved safe oftener than the opposite course. Since official price statistics are now available for several years, the wise grower can plan his planting for the market in the light of a definite knowledge of the probabilities.

"In marketing, this general principle of one extreme following another is frequently in evidence. Markets that are scantily supplied to-day may soon be glutted, but the shipper who acts promptly according to market reports of scarcity can often reach such markets early and receive the advantage of high prices. Handling shipments correctly in this respect requires all the judgment the shipper may possess even with the most prompt and reliable market news that he can secure. The recent development of a class of large distributors able to direct shipments successfully is doing much to equalize prices in the various markets of the country. The figures supplied by the railroads to the United States Department of Agriculture show that the greater part of some crops shipped long distances is shipped not direct to markets but to 'gateways' and sent to final destination by diversions at these points, the diversions being made by order of the shipper in accordance with the condition of the various markets or with sales made while cars are rolling. By this system many markets are kept fully supplied by purchases of car lots soon to arrive, or within one or two days' run of those markets. This has a steadying effect on prices and usually tends to discourage consignment shipments to such points.

"All shippers now have access to official market information which enables them to judge for themselves regarding the probable market conditions at the time when their shipments should arrive, and to act accordingly. With the less perishable crops like northern potatoes and apples, they may ship almost anywhere at any time, and may hasten or delay the movement if market conditions warrant such action. Thus during the past season, some of the southern potato growers, knowing the short crop forecast for Virginia and Maryland, and suspecting the beginning of a better market, held their potatoes a few weeks and were rewarded by advancing prices. For the same reason, some northern growers dug and marketed their potato crop a little earlier than usual. A short crop of anything in any

leading producing section creates an opportunity for producers in a competing section.

"On the other hand, greatly increased acreage and a favorable crop outlook in a prominent producing section may suggest the need either of haste or of delay in marketing the product from some other sections the output of which normally comes to market at about the same time. In some seasons the supply is too great to be marketed satisfactorily, even without special competition from other sections, and it is such conditions that often force growers to unite for self-preservation. At these times they are in a frame of mind to coöperate in grading, packing, shipping, and advertising the product and to seek and develop new markets. Such efforts, begun as a last resort, have often vastly improved the position of growers, securing increased returns not only in the season of emergency, but also in the normal years that may follow."⁴

The Effect of Ability to Pay on Demand. — Desire is the basis of demand, and, therefore, of value, for nothing has value unless people desire it. While desire is the basis of all value, there is another very important factor which determines demand and that is the ability to pay. There are many people with the desire to possess an automobile who have no effect on the demand for automobiles for the reason that they do not have the means with which to buy. A man's desire for a new home has no effect on the building materials market unless he can pay the price. Desire crystallizes into demand only when there is ability to pay.

With changes in demand must come changes in production, if goods are to be saleable. Changes in demand come with changes in desire or ability to pay. If goods are not demanded, they can not be sold. Demand must be the regulator of production if production is to be carried on profitably. In making an analysis of demand, due consideration must be given to the purchasing power of the

⁴ U. S. D. A. Yearbook 1918, pp. 277-280.

market as well as to the desires or needs of the community.

Some markets have greater purchasing power than others. The producer of high-grade goods, in order to get the highest return, must select the market which has the ability to pay the price for high-grade produce. The farmer should grade his produce in such a manner as to enable him to send the kind which can be sold in the different markets. It is useless to send high-quality and high-priced produce to a market where the buyers have very low incomes and must economize on their purchases. High-grade goods should go to the market where the consumer does not need to count his pennies. The man with a large income buys high quality because he can pay the price.

To gauge the demand accurately, the seller must know not only the desires or needs of the market, but also its purchasing power. In making an analysis of demand, careful attention should be given to the income of the different communities. Business depressions cause prices to go down for the reason that demand falls off. Demand falls off because of the decreased purchasing power of the people. During periods of depression the income of all communities does not decrease to the same extent. The industrial centers suffer great decrease because of unemployment due to the shutting down of plants, while a non-manufacturing community like Washington, D. C., is not greatly affected. The differences in markets must be taken into consideration. Moreover, decreased purchasing power does not have the same effect on the demand for all kinds of produce. There is an intimate relationship between industrial conditions and the relative demands for farm produce. When wages do not advance as rapidly as prices, there is an increased demand for grains and vegetables and a lessened demand for animal products.

Market analysis should not be made primarily for the purpose of sensing the demands of the present, but should

be the means of indicating, if possible, the trend of demand, so that future production can be better regulated. A continuance of industrial activity in our large cities and steady employment of laborers at good wages will maintain a strong demand for vegetables, milk, fruits, and meat. An industrial depression, on the other hand, will cause a shrinkage in the demand because of the lack of buying power. No study of demand is complete if it does not include a study of income.

Price Information. — Prices are indications of the strength of the market and the quantity of produce needed to meet the demands. A market in which the price is firm is a good place to sell in. A weak market should be shunned. A seller cannot wisely market his goods without keeping in touch with the prices in the different markets. It is by watching prices and sending produce to the market which has the greatest pulling force that proper distribution and best financial returns can be secured. All other factors in the market are usually reflected in price. However, prices might be low in a certain market because of the quality of the product. A low price in this case would not justify the withholding of shipments from this market. On the contrary, it might make it desirable for the shipper to enter with high-quality produce. Prices are very important factors to consider in selecting the market, but they are not the only and deciding factor.

The produce seller needs to know the trend of prices. He must watch them from day to day. Since the movement of some goods is very rapid, the conditions in any given market may change very quickly. Price information must be kept up-to-date. The prices published in the country weekly paper are of very little value to the shipper. Conditions may change — and usually do change — before the farmer can get his produce to the shipping point. If selling is to be on a scientific basis there must be some means for the farmer to get information concerning prices and other

pertinent market data. This information must be carefully analyzed. With few exceptions, this is an almost impossible task for the individual farmer. Market information can best be secured by farmers as a group and then disseminated to the individuals.

Another reason why the seller should keep in touch with prices is to enable him to know whether the price offered is in keeping with the conditions of the market. Without a knowledge of market trends and conditions, the farmer cannot sell with any degree of intelligence. An equitable price does not result, as a general rule, unless equal knowledge of the market is held by both parties to the deal. Information concerning prevailing prices is vital.

Quantities in Storage. — Non-perishables are stored and held over from the harvest season until needed by consumers. There is a considerable hold-over of wheat, cotton, tobacco, and wool each year. The crop forecasts tell the amount which will probably result from the current year's production. The amount held in storage will have a direct influence on the supply available to meet the consuming demands for the next season. Eggs, butter, and other semi-perishables are held in cold storage from the season of high production to the period when consumption is greater than production. The price for these foods will depend greatly upon the amount which is being held in storage. Unless the seller of produce knows what the amounts in storage are, he does not have all the information which has a bearing upon the market.

Crop Condition and Forecasts. — The price which a dealer will pay for a good is arrived at by estimating the amount he can sell it for at some future time. The price a consumer pays is based upon what he considers this particular good to be worth to him in the satisfaction of his wants. Prices in the dealer market are based upon what the consumer will pay at some future time. If the good is a perishable one, the time elapsing between the sale to the dealer

and the sale to the consumer must be short unless there are ample cold-storage facilities. If the good is a non-perishable one, the time elapsing between the sale by the producer and the purchase by the consumer may be longer. Whenever a long time elapses between production and sale to the consumer, there is a greater risk, and more elements will influence price.

Supply on the fresh fruit market — peaches, grapes, berries — is affected only by the quantities which are flowing to the market from day to day. There is no hold-over in storage. In such a market, the condition of the crop as the season of marketing progresses has a vital influence on the price. It is only during the season of marketing, however, that reports on crop conditions influence price, for there is no market except at such times. However, forecasts which indicate a large or short crop of one fruit will have an influence on the price of another. For example, if a low production of grapes and apples is forecast, the price of peaches will probably remain strong even though the supply of peaches is large, for if the housewife cannot secure grapes and apples for canning she will buy more peaches.

In the non-perishable market, every bit of information which shows a change in the probable amount of the coming harvest will immediately have an influence on the price. If production is to be short, the stocks in storage must be conserved. If, on the other hand, production is to be great, the quantities now in storage will be moved out into consumption as rapidly as possible. This holding back or putting out more rapidly is affected by price changes. The agency which supplies information leading to such price changes performs a valuable social service.

Farmers need forecasts on crop conditions and probable production to enable them to know more accurately what their products should bring on the market and to guide them in their productive operations. "The purpose of

agricultural forecasting is the wise guidance of production in order that there may continue to be a proper balance between the various lines of production and between agriculture and other industries.”⁵

Information Concerning Trade Practices and Market Services. — Everyone who sells in a market should understand that market. The farmer should know about the market channel through which his produce passes after it leaves his hands, if he is to market wisely. There are certain market services necessary. There are certain expenses incurred along the path from producer to consumer. The farmer should know about these so that he may have a realization of what the middleman does for the pay he receives. Ignorance of market services has caused much unjust criticism of dealers and of our present market system. In many instances, farmers have gone into the business of marketing their own produce because they thought middlemen were taking more than their just share of the “spread.” The results have often been disastrous.

In the handling of goods from the local shipping point to the consumer's door, many expenses and wastes occur because the goods have not been properly handled by the producer. Fruit and vegetables are not always packed so as to withstand the hardships of the market journey. The importance of grading is not known to every farmer, and this lack of knowledge may lead to a low price and much waste. Every practice which prevails in a market should be known to the seller of the goods, so that he may properly prepare his produce.

Through organization, farmers can secure the different kinds of information necessary for efficient marketing. Not until such information is secured and used as a guide, will agricultural marketing be so improved as to bring beneficial

⁵ Dr. H. C. Taylor, Chief, Bureau of Agricultural Economics, U. S. D. A., in an address to students of Cornell University, Aug. 11, 1923.

results to either the farmer or the consumer. Real information, facts, truth, will enable us to see the weaknesses of our present practices. It is only by mere chance that we may correct our ways without first getting the necessary information.

CHAPTER XIII

MARKET WEAKNESSES AND THEIR REMEDIES

Science has made it relatively easy to produce goods. In industry and agriculture, all would be well if there were only the problems of production to deal with. Before the days of great advancement in applied science, it was difficult to produce goods. Man used his industry and physical force to induce Nature to give up the things he desired. He labored through long and weary hours to fashion the raw materials into forms which would suit his convenience and fancy. The great difficulty of that age was to obtain the goods. The development of civilization and culture was hindered by the lack of material goods and by the long hours of toil required to get the bare necessities of life.

It was not the man of unusual physical endowment and the longer hours of labor that relieved the situation, but the man of thought from whose brain came invention and discovery that freed mankind from the ever-threatening specter of want. The thinking man found the way out. Mechanical inventions, chemical discoveries, and the development of agricultural science have enormously increased the facilities for making goods.

Applied science has stimulated the flow of vast quantities of goods to market. No longer does the consumer live in squalor because society is incapable of producing those things which make for comfort, pleasure, and culture. The goods are waiting for the buyer. In most cases the buyer is sent for.

The one serious problem which confronts all producers of goods to-day, whether their product be milk, silk shirts, wheat, automobiles, or jazz music, is that of selling. The millennium would surely arrive in the world of industry if

each producer could sell all his product at cost plus a reasonable profit. To many this seems a just and equitable price. It is, provided cost is just, equitable, and determinable; and buyers are willing to pay the price.

That there are differences between the problems of production and selling is almost universally recognized. Production is based primarily upon natural laws which are exact and ever the same. These laws can be learned by man. The development of science is a part of the process of learning. The sale of a product, on the other hand, is based primarily upon human valuations. Human valuations, desires, fancies, and whims cannot be foretold with certainty and are measurable only in terms of the amount of money the buyer is willing to give up for a certain thing. The amount of money a buyer is willing to give up in order to secure a good depends upon (1) the intensity of the desire, and (2) the buying power of the purchaser.

Any producer of goods who starts his productive machine to work and tells it to "grind salt, salt, and nothing but salt," is likely to sink his ship of commerce. That his machine will grind salt well and that he particularly likes to grind salt are not reasons why he should grind it. People may not want salt. They may want dill pickles and radio sets. The fact that our productive machinery can produce things well is no reason why people should want them.

Before the era of industrial development, it was quite easy to sell almost everything produced, as there was a dearth of goods. Attention was given to improvements in production, in the belief that everything which was made would attract a buyer. The industrial world has too long confined its attention to productive processes. What is especially needed now is a study of consumption.

The world of industry and commerce has been studying demand. It has attempted to bring demand and production into greater harmony. Agriculture has sadly neglected this phase of its business. Instead of making a scientific study

of the demand for farm products, the possibilities of the available markets, and the problems of selling, farmers have devoted too much time and effort to airing their grievances against other classes of society. Instances may be cited, no doubt, to show that farmers have failed to receive just returns on produce sent to market. However, it is fallacious to assume that farmers, as a class, are selected to be the victims of injustice. With the present organization of our economic machinery, every man is going to get the greatest profit he can. Lack of information makes it impossible for a seller to be on equal terms with the buyer who has information concerning the market. The farmer is not beaten in the market place because he is a farmer, but because he does not know about markets and market conditions.

It is hard to say just what things are necessary to bring about the desired improvement in the market for agricultural products. There are some things, however, which can be done to bring advantages to both farmers and consumers. It should not be the purpose of any movement to secure lower prices to consumers at the expense of farmers, nor higher prices to farmers at the consumers' expense. Equity will not result if the aim of the market improvement program is to take something from one class merely to give it to another. Marketing should be considered as a part of the process of making goods available for the satisfaction of wants. The market processes should be so performed that they will bring forth the greatest returns for the economic effort expended.

The attention given the market problem during the past ten years has resulted in the discarding of some of the old theories concerning market defects and improvements. It has been found that the problem is not as simple as it was once thought to be. There is something more to it than "the elimination of the middleman." Improvement of marketing is very vitally connected with the improvement of production. In many instances, much more can be done

to improve market conditions by proper action on the farm than in the market places. Improvement in the egg market, for example, can be brought about much more effectively by "swatting the rooster" instead of the middleman.

Defects of the Agricultural Marketing System. — A study of marketing has brought forth a realization of some of the basic defects of our present system. Probably not all of the defects have been discovered. As time goes on, no doubt, conditions will change so as to bring forth new ones. At the present time, in the light of our knowledge of marketing, there are certain defects which are outstanding.

1. *Lack of Knowledge of the Demand.* No market can be properly supplied unless the producer for that market knows what is wanted, in what form it is desired, and how much of it is needed. A study of demand is one of the basic requirements for the improvement of the agricultural market. The farmer should produce things for which people are willing to pay good prices. This is a service of vital importance to the consumer as well as to the farmer. Goods cannot be sold at remunerative prices unless they meet the requirements of the consumer. Demand must be ascertained as nearly as possible and production carried on with the view of satisfying that demand. Production must be guided by the desires of the consumer instead of those of the farmer, if the desired market conditions are to result.

2. *Lack of Standardization in Production.* Since production is not guided by information concerning demand, there is a tendency for farmers to produce according to their fancies or preferences. There is too much variation in the kind of produce grown. Too many varieties are produced in one region. This great variety of produce increases the cost of marketing and decreases the return to the farmer. In those sections where the greatest improvement has been made in market conditions, there has been standardization of production. Concerning the value of this practice, the Joint Commission of Agricultural Inquiry said:

“The commission believes that the situation of the agricultural producer can be materially improved by a standardization of production of crops in producing centers so as to permit more economic selection, grading, and preparation of commodities in the producer's local market, and recommends that the agricultural producers of the United States be encouraged to develop coöperative associations to hasten the standardization of agricultural production, improve the distributive processes, and reduce costs.”¹

The program of standardization of production has been delayed too long. Its recognition and adoption by farmers is one of the things that are basic to market improvement.

3. *Poor Preparation for Market.* The dealer buys things which he can sell to the best advantage. The consumer buys things which appeal to him. One of the most important factors influencing the choice of the consumer is the appearance of the product. Uniformity is one of the most important items affecting the appearance of agricultural produce. Even though the consumer intends to buy only one article, he is attracted by a display that is uniform as to size and color. The purpose of grading is to bring about uniformity in size, color, and quality. Grading pays because it causes a better price to be obtained, and reduces waste.

In almost every lot of produce coming from the field, there is a varying proportion which is unfit for market because of defective shape, improper size, or poor quality. That portion which will not sell for enough to pay its market expense should be sorted out and left on the farm. A product is improperly prepared unless it is graded so that every unit of it is of the quality desired by the consumer.

After a product is properly graded, it must be packed in such a manner that it can be efficiently taken to market. The packages must be such that they can be easily and safely handled, and must at the same time protect the prod-

¹ Report of the Joint Commission of Agricultural Inquiry. Part IV, p. 9.

uce from injury. There is much loss of produce during the market process because of improper packing. Goods which have been properly produced will not retain their good qualities or bring good prices unless they are properly prepared for the market.

4. *Improper and Inadequate Storage Facilities.* Some goods are not stored in such a way that quality is retained. The loss from improper storage is enormous. Wheat, corn, hay, and cotton are classed as non-perishables, but there is an enormous loss of these products each year because of improper storage. Storage facilities must be such that the product will be preserved, or waste will be the result. Wastes cause social as well as money losses.

The facilities for storage must be adequate to hold the produce, so that it will not be necessary to place it all on the market within a short period. Sufficient storage space is essential to orderly marketing. Goods should move to the market places in accordance with the demand for them, and in quantities which will make it possible for the market machinery to take care of them properly. Adequate storage facilities, which will properly protect the produce and permit orderly marketing, are essential to market improvement.

5. *Inadequate Transportation.* Rapid transportation has made the development of markets possible. There has been great advancement in facilities and methods of performing this essential market service; however, there are still some defects which should be remedied. The most glaring of these defects are (a) carelessness in handling, (b) delays, (c) failure to keep produce at proper temperature, (d) lack of proper terminal facilities, (e) lack of facilities and equipment to permit rapid handling at times of heavy crop movement, (f) lack of transportation routes from certain local markets, (g) lack of adequate freight service from certain local markets having railways, (h) lack of coördination of the transportation facilities of the country so as to permit the handling of transportation problems for the country

as a whole, (i) lack of a proper schedule of rates — some products are paying too high a rate in proportion to their value.

While there has been notable improvement in methods of highway transportation, there is still a lack of an adequate system. Poor roads, indirect routes, and congested traffic make the transportation of produce from the farm to the local market, and from the wholesale market places to the

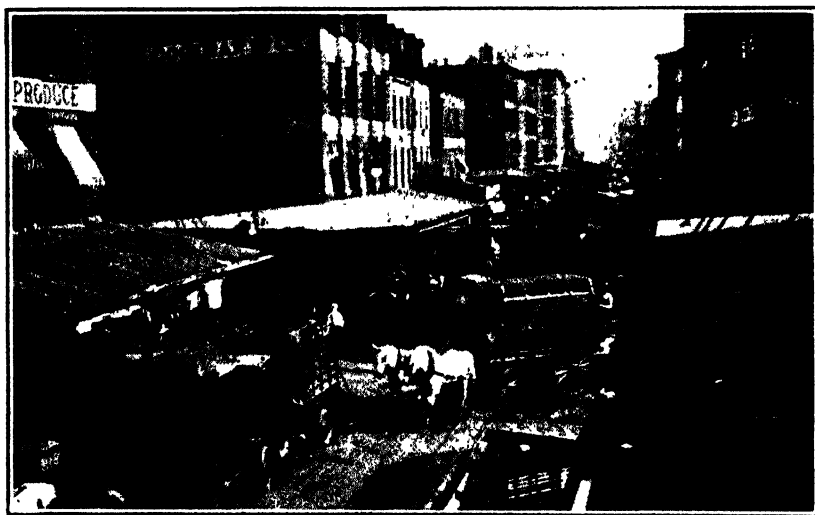


FIG. 39. — Congestion in the city market adds to costs. (Courtesy Bureau of Markets, New Jersey Department of Agriculture.)

retail markets in cities, an expensive operation. We have not yet learned how to load and unload trucks and cars rapidly. Our streets, store entrances, warehouses, and piers are not arranged so that freight can be handled without confusion, delays, and much extra effort. There is much room for improvement in transportation.

6. *Improper Handling.* All through the production and market stages there is much carelessness in the handling of produce. This lack of care causes great wastes, which not only reduce the money income of those in the industry

but also cause a social loss. Effort expended in the production of a good is of no effect if the product is later rendered useless for consumption.

We find improper handling of goods on all sides of us, every day. Proper care is not taken to prevent damage to perishable produce. Fruits, vegetables, and dairy products are permitted to become too hot or too cold. Apples, peaches, and potatoes are bruised. The result is that economic goods are wasted, and value is destroyed. Returns to producers and handlers of the produce are thus reduced. If there is waste, someone must pay. At a time when costs are high and produce is expensive, it is very important that every effort in industry be productive. In addition to the waste due to lack of care during handling operations, there is also a waste from improper methods of handling goods. Waste from improper methods is a waste of effort, while waste from lack of care in handling is a waste of physical goods. Every effort should be made to reduce wastes of all kinds to the minimum.

7. *Defects of Market Finance.* The financing of agriculture is a task of great magnitude, and one to which much thought has been given during the past few years. As a result of such thinking, coupled with agitation, banking laws have been modified with a view to remedying the unfavorable agricultural credit conditions. To what extent this legislation will bring the desired results is problematical. Credit is dependent upon things other than law. There must be security, integrity, and ability to know when and how to use credit. In many instances there has been, no doubt, too easy credit, which has resulted in financial difficulties. Nevertheless, there have been difficulties in securing credit on advantageous terms to finance agricultural marketing properly. Much thought and study must be given this problem, as it is one about which we know very little at present.

8. *Presence of Too Much Risk.* In the market there are

risks of physical loss of goods and price changes. Demand may change between the time when production is started and the time when the product is ready for the market. The supply of goods may be greater than was anticipated at the time production was planned. The risks due to physical loss can be reduced by better methods of handling and caring for goods. The risks of price changes can be reduced by better market information among producers and dealers. Uncertainty is the basis of risk. The dissemination of information concerning the supply of goods and the demand for them will tend to reduce risks. Such information, however, must be properly utilized if it is to be of value.

9. *Lack of Information.* There is a lack of information about crop conditions, available supply, best markets, industrial conditions, price movements, customs of people, the way people want things made or packed, and services desired; in short, the farmer has very little tangible information about all those elements entering into supply and demand. Better market conditions will not result without real information among farmers concerning the things which influence, or make, supply and demand. There must be a comprehensive study of the forces which make price. Unless information concerning the market is available to both the seller and buyer, there can be no equality in bargaining.

10. *Lack of "Orderly" Marketing.* Agricultural products are not marketed in accordance with demand or the facilities for handling. Too often, produce is "dumped" on the market without any regard for the needs of the community. Goods so offered can be sold at some price; but it often happens that such marketing will depress prices below the level justified by general market conditions. A heavy movement of a product will often overtax storage and transportation facilities, with the result that price will be greatly depressed. Production and marketing should be as nearly as possible in harmony with the demand of the market.

11. *Lack of Knowledge of Market Processes.* There are many people who do not know about the essential processes of marketing. This absence of knowledge is bad because it causes wrong actions. The stability of the market depends in a large measure upon the attitude of those in the market. Some farmers think middlemen are unnecessary. If every person producing for a market knew of the importance of the different market agencies, and how products should be prepared and handled, many of our market evils might be modified. Lack of faith in the existing machinery for the performance of market services is the cause of much unrest, agitation, and wrong action. Much of this lack of faith is due to a lack of real information about the services rendered by the different market agencies. What is needed is a scientific study of the market. Too many investigations are based upon prejudice and preconceived ideas. The market is difficult to understand. There are many factors entering into market practices which are difficult to analyze. The unbiased scientific methods of study which have been applied to the problems of production must be applied to those of the market. It is essential, if best market conditions are to prevail, that every person have real information concerning the processes of marketing. Remedies for all our market ills are offered readily by those who know nothing about the market; those who are familiar with the processes and practices of the market are not so confident that they have the ability to act as market doctors. The public needs to have a knowledge of the market because it is so closely connected with its operation. Real knowledge about this institution will prevent many wrong steps and will result in better market conditions.

12. *Dishonesty.* In the struggle for wealth, men do many things which are not in keeping with rigid standards of honesty. "Business is business" is the excuse given for certain sharp practices. Under our present system of private profit, business is conducted for the primary purpose

of making profit. Service to the community is not the impelling force. Service is of vital importance, however, mainly in that it has an effect on profits. If service brings more profit, then service will be rendered. The modern business man has learned that honesty pays in business. This realization has done more to advance honesty than the recognition that honesty is right. In general, honesty prevails in business to-day; there are still those, however, who do not realize that such a policy pays, and some who think that they will enhance their income by following dishonest practices. There are people who consider dishonest practices a sign of shrewdness, while others do not realize what dishonesty is. Some see no wrong in placing poor apples in the bottom of the barrel and good ones on top. To some it does not seem improper to take undue advantage of another's lack of information concerning the market. Dishonest practices do exist to a far greater extent than our present degree of civilization seems to justify. This prevalence of dishonesty is not confined to any one class. It is to be found among the middlemen, laborers, farmers, and consumers. Dishonesty makes for uncertainty and risk in business, and these things make for higher costs. A very marked improvement in marketing will come when the honesty of everyone can be absolutely depended upon.

How Improvement Can be Brought About. — Remedies for our market ills may come through the action of farmers, dealers, consumers, and the Government.

Farmers should study demand, and improve their productive and market processes, so that the kind of products desired will go to the market in the manner, at the time, and in the quantities desired. Farmers must realize that profit from operations is the difference between income and outgo. Much attention must be given to a reduction of the cost of production. Farmers have more control over their costs than they do over market prices. If prices are such that profits cannot be made, then costs must be reduced. Pro-

duction is so closely connected with marketing that the two should be thought of as steps in the same process.

For effective improvement of the market for agriculture as a whole, coöperation among farmers is essential. The problem is beyond the scope of the individual. The wider the market, the greater the task of securing the proper information. The gathering and dissemination of market information, improvement of productive practices, orderly marketing, and in some cases the preparation for market and storage are things which can be done better by groups than by individuals. It is very doubtful whether it is desirable for farmers to take over the functions of the regular distributive agencies in the market. There has been much good accomplished through coöperative shipping associations, creameries, retail stores, and other agencies. However, the main type of coöperation which will bring the best results in market improvement is that which has to do with market studies, grading and packing, storage, production processes, and the elimination of wastes. It may be that coöperation along these lines will not be as complete as desired unless the distributive agencies are also taken over. The farmer can do much as an individual to improve market conditions by giving strict attention to the quality of the product he grows, by acting in coöperation with other farmers, and by utilizing the market information made available by the Government and other agencies.

Dealers can bring about improvement in market conditions by finding out what the consumers want and striving to supply that want in the most efficient manner. Every effort should be exerted to eliminate wastes during the market process. Wasteful competition should be eliminated so that more effort will be expended in the performance of the duties of distributing the products of trade, and less effort expended in competitive practices.

Consumers should study market conditions and become aware of the causes for different market practices. De-

mands should be tempered by reason. The excessive costs of living to-day are largely due to the demand for certain services. These services, which are provided by the middleman, are expensive and must be paid for.

The Government can assist in marketing by providing regulations under which trade is to be carried on. Certain practices are declared unfair. Standards of weights and measures are designated by law. Government grades should be established for all products susceptible of grading. Standard packages and methods of packing should be designated by the Government, and all shippers and handlers of produce encouraged or forced to comply with these regulations. The large volume of produce going through the market makes it essential that there be standardization as to grades and packages. The Government can also greatly facilitate marketing by removing the uncertainty concerning what may be done by associations of business men in the way of tempering competition and eliminating wasteful competitive practices.

A more thorough study of the problem will greatly help farmers, dealers, consumers, and the Government to facilitate marketing. Such a study must be scientific and free from preconceived ideas, bias, prejudice, or class interest. We need more facts about the problems of marketing. Improvement came in production when science guided the way; a similar improvement will result from the application of science to market practice.

BIBLIOGRAPHY ON AGRICULTURAL MARKETING

During the past few years, much has been written on the subject of marketing. Many good books on this subject have appeared. Some of these have dealt with agricultural marketing exclusively, while others have devoted more attention to the marketing of manufactured products and the principles of marketing in general. It is almost impossible to give a complete list here. The literature on marketing has grown very rapidly, and there is now a great wealth of printed material.

The student of marketing is urged to study diligently the very valuable material which has been published by the United States Government, state departments of agriculture, state colleges of agriculture, state marketing departments, and other public agencies.

Trade and agricultural papers and official publications of economic organizations contain much good market material. Also, texts on the principles of economics should be read in order that the student may obtain a knowledge of the principles of economics, of which marketing is a branch.

In addition to standard texts on economics, special reference is made to the following:

- H. C. TAYLOR.....Agricultural Economics.
T. N. CARVER.....Principles of Rural Economics.
FRED E. CLARK.....Principles of Marketing.
FRED E. CLARK.....Readings in Marketing.
W. D. MORIARTY.....The Economics of Marketing and Advertising.
PAUL T. CHERINGTON.....The Elements of Marketing.
C. S. DUNCAN.....Marketing, Its Problems and Methods.
PAUL W. IVEY.....Principles of Marketing.
L. D. EDIE.....Principles of the New Economics.
L. D. H. WELD.....The Marketing of Farm Products.
B. H. HIBBARD.....Marketing Agricultural Products.

Federal Trade Commission, Wholesale Marketing of Food.

"	"	Grain Exporters.
"	"	The Grain Trade.
"	"	Wheat Prices (1920 crop).
"	"	Sugar Supply and Prices.
"	"	Milk and Milk Products.
"	"	Meat-Packing Industry.

Joint Commission of Agricultural Inquiry. The Agricultural Crisis and Its Causes.

Current magazines and trade papers contain a vast amount of material on market economics. Constant reference should be made to these. The student will be well repaid for his effort in searching through the chaff for the kernels which are to be found.

Marketing is progressive and must be studied in a progressive manner. New material and new developments appear from day to day. Only by keeping in touch with these developments will progress be made.

APPENDIX A

SUGGESTIONS FOR SPECIAL ASSIGNMENTS

1. Write a paper on "Weaknesses of the present system of marketing agricultural products."

2. Make out a list of products consumed by you during a single day.

3. Name ten important food products which *are*, and ten which *are not*, processed or manufactured before reaching the consumer.

4. Write a report on an actual instance in which some community has adopted a certain variety of farm product or breed of livestock as a standard for production, and show the advantages which have resulted therefrom, and the difficulties which were encountered.

5. Prepare a chart showing the market channel through which some one agricultural product passes between the farm and the consumer.

6. Name five farm products which you think *can* and five which you think *cannot*, be successfully marketed directly from the producer to the consumer. Give reasons in each instance.

7. Make a list of five manufactured products which farmers buy, giving the main centers of production and the market channel through which they ordinarily pass.

8. On what agricultural products has the United States Government promulgated market grades?

What are the advantages of grades to the (1) farmer, (2) middleman, (3) consumer?

9. Write a paper on the value of trademarks to the farmer, and discuss the practicability of their general use.

10. Make a report showing the following for some one agricultural product:

- a.* Volume of annual production since 1900.
 - b.* Value of annual production for same period.
 - c.* Farm value per unit (annually).
 - d.* Factors influencing volume of production.
11.
 - a.* Make a map showing the principal terminal markets for (1) wheat, (2) hogs, (3) cotton, (4) cattle, (5) wool.
 - b.* What factors influenced the location of these markets?
 - c.* What effect would the following have on these markets:
 1. Higher freight rates.
 2. Lower freight rates.
 3. Development of the St. Lawrence waterway.
 4. Improvement of highways.
 5. The abolition of trading on exchanges.
12. Make a report showing the extent to which cold-storage facilities are used in holding some one perishable farm product from the period of high production to the period of shortage. (Use figures for five years.)

What are the effects of storage on the price of this product?
13. Make a report showing the main features of the United States warehouse regulations.

For what agricultural products are warehousing facilities inadequate? Explain why.
14. Write a paper on "The effect of increasing transportation costs on agricultural production."
15. Write a paper on "The possibilities of insuring against risks of marketing agricultural products."
16. Select some commodity exchange and tell,
 - a.* When organized.
 - b.* Why organized.
 - c.* Its functions.
 - d.* Advantages and disadvantages to (1), the farmer, (2) the middleman, (3) the consumer.

17. Write a paper on the possibilities of the farmer's using "modern sales methods" in his business. Take into consideration both "direct" and "indirect" marketing.

18. Write a paper explaining how the farmer is financed in your local community.

19. Write a report giving concisely the functions of:

a. A draft. b. A bill of lading. c. A warehouse receipt.

20. Write a paper on "Advertising as an aid to the farmer in selling his produce."

21. Write a paper outlining specifically and concisely some of the plans which have been suggested to regulate the prices of farm products by legislation, and discuss the advisability of such regulation.

22. Write a paper outlining the methods of governmental aid to agricultural marketing in your state.

23. Select some one product and show how demand has changed during the past fifty years. Give reasons for this change.

24. Make a chart showing price trends for some one agricultural product, "All commodities" and "Farm Products." Explain the factors which have influenced these price relationships.

25. Write a paper explaining why the producer of Texas cabbage gets a smaller per cent of the New York City wholesale price than the Iowa cattle raiser gets of the Chicago wholesale price.

26. Write a report giving some specific instance in which a change in weather influenced the demand for some farm product.

27. Make a report on the facilities for collecting and disseminating information on the agricultural products market, showing how this information can be utilized by the farmer and the middleman. Criticize the statement that crop and market reports are a detriment to the farmer.

28. Select one product in which there has been a tendency toward greater specialization in marketing and one in which the tendency has been the opposite, and explain the reasons for these changes and what influence these changes have had on costs of marketing and price.

29. Write a paper on the influence of the chain store in the marketing of one of the following products: potatoes, milk, apples.

30. Write a paper showing how the market for some selected agricultural product can be improved.

APPENDIX B

TRANSPORTATION

Considerable attention has been given to the percentage of the wholesale or retail price of farm products which goes for transportation. This percentage depends upon several factors: (1) The bulk of the product in proportion to its value. (2) The quality of the product. (3) The distance shipped. (4) The state of the market. (5) Whether cars are loaded to minimum capacity.

In Table I, prices, freight rates and percentage of freight on cotton are shown. The percentage for freight varies from 1.3 to 6.7. This percentage is highest on cotton from producing sections farthest from the mills. It will be noted, however, that from Rosebud, Texas, to Fall River, Massachusetts, the percentage varies from 6.3 on the low price to 4.3 on the high price for Good Middling cotton. Also, on the low price it varies from 6.3 for the high grade to 6.5 for low grade.

Table II shows distribution of price paid by purchaser of livestock going into the Chicago market. The percentages of freight costs are largest on livestock from greatest distances and lowest value per head.

This seems to indicate that the percentage of freight can be decreased by shipping to the nearer markets and sending better quality of livestock.

TABLE I
FREIGHT RATE TO REPRESENTATIVE CONSUMING MILL POINTS
Period August 17 to December 28, 1923

Point of Origin and Grade	Range in price paid producer for cotton during period			Freight rate to consuming mills (per 100 pounds)				Per cent freight rate is of price paid producer plus freight rate						Freight rate per 100 pounds to ports for export	Port
	Low	High	Range	Ball River Mills	Green River	Columbus	On low price			On high price					
							Ball River Mills	Green River	Columbus	Ball River Mills	Green River	Columbus			
<i>Rosebud, Texas</i>															
Good Middling	23 25	35 3	12 10				6 3	5 9	5 3	4 3	3 9	3 8	3 6	\$0 84	Galveston, Tex
Strict Middling	23 01	34 5	11 85	1 57	\$ 45	1 30	6 3	5 9	5 4	4 3	4 0	3 8	3 6		
Middling	22 75	34 3	11 65				6 5	6 0	5 5	4 4	4 1	3 9	3 7		
Strict Low Middling	22 50	33 56	11 0				6 5	6 1	5 5	4 5	4 1	4 0	3 8		
<i>Yardum, Texas</i>															
Strict Middling	23 75	36 00	12 25				6 2	5 5	5 2	4 2	3 9	3 7	3 5		
Middling	23 2	35 0	11 77	1 57	1 45	1 30	6 3	5 9	5 4	4 3	4 0	3 8	3 6		
Strict Low Middling	22 75	33 27	10 50				6 5	6 0	5 4	4 5	4 2	4 0	3 8	79	Galveston, Tex
Low Middling	22 0	31 56	9 56				6	6 2	5 6	4 7	4 4	4 2	4 0		
<i>Oklahoma City, Okla.</i>															
Strict Middling	25 57	34 5	9 06	1 54	1 40	1 25	5 7	5 2	4 8	4 3	4 0	3 7	3 6	1 06	Galveston, Tex.
Middling	25 0	33 0	8 00				5 8	5 3	4 9	4 3	4 0	3 8	3 6		
Low Middling	23 75	32 06	8 2				6 1	5 6	5 1	4 6	4 2	4 0	3 9		
<i>Lawrence, Ark.</i>															
Middling Fair	34 75	35 00	10 25	1 31	1 21	1 10	5 0	4 7	4 3	3 6	3 4	3 2	3 0	0 15	Galveston, Tex.
Good Middling	24 51	34 75	10 2				5 1	4 7	4 3	3 6	3 4	3 2	3 1		
Middling	24 25	34 50					5 1	4 7	4 3	3 7	3 4	3 2	3 1		
<i>Streeneport, La.</i>															
Good Middling	22 25	34 00	11 75	1 3	1	9 85	5 0	4 6	4 4	4 2	3 9	3 7	3 5		Galveston, Tex.
Middling	21 75	33 0	11 2				6 0	4 7	4 4	4 3	4 1	3 9	3 7		
Low Middling	21 7	31 0	9 2				6 3	4 9	4 5	4 3	4 1	3 9	3 7		Galveston, Tex.

TABLE I. — *Continued*

Point of Origin and Grade	Range in price paid producer for cotton during period		Freight rate to consuming mills (per 100 pounds)				Per cent freight rate is of price paid producer plus freight rate				Freight rate per 100 pounds to ports for export	
	Low	High	Fall River Miss.	Greenboro (N. C.)	Greenville (S. C.)	Columbus (Ga.)	(In low price		On high price			
							Greensboro (N. C.)	Greenville (S. C.)	Columbus (Ga.)	Full River Miss.		Greenville (S. C.)	Columbus (Ga.)
<i>Pickens, Miss.</i>												
Strict Middling	\$27.00	\$35.50	\$1.30	\$1.09	\$1.03	\$1.3	4.6	3.9	3.7	4.6	3.5	3.5
Middling	27.00	35.00					4.6	3.9	3.7	4.6	3.6	3.6
Strict Low Middling	26.25	33.50					4.7	4.0	3.8	4.7	3.7	3.7
Low Middling	25.75	32.50					4.8	4.1	3.9	4.8	3.9	3.8
<i>Headland, Ala.</i>												
Middling Fair	32.00	36.50					3.4	2.7	2.3	2.1	3.0	2.8
Good Middling	31.50	36.00					3.5	2.9	2.5	2.2	3.1	2.9
Strict Middling	29.25	35.75					3.7	3.0	2.3	2.3	3.1	3.0
Middling	29.00	35.50	1.135	.575	.765	.69	4.3	3.4	3.0	2.7	3.1	3.1
Strict Low Middling	29.00	35.00					3.8	3.0	2.6	2.3	3.1	3.0
Low Middling	28.25	33.00					3.9	3.0	2.6	2.4	3.3	3.2
Strict Good Ordinary	26.00	32.00					4.2	3.3	2.9	2.6	3.4	3.3
<i>Cordele, Ga.</i>												
Good Middling	33.50	35.50					3.1	2.1	2.0	1.3	2.9	1.9
Strict Middling	25.00	33.00					4.1	2.9	2.6	1.6	2.9	1.9
Middling	24.50	34.00	1.06	.735	.675	.45	4.1	2.9	2.7	1.6	3.0	2.1
Strict Low Middling	24.00	32.00					4.2	3.0	2.7	1.6	3.2	2.2
Low Middling	25.00	31.00					4.1	2.9	2.6	1.6	3.3	2.2
<i>Ripley, Tenn.</i>												
Strict Middling	28.00	31.00					4.1	3.8	3.6	3.8	3.4	3.0
Middling	27.50	33.50					4.2	3.9	3.6	3.9	3.5	3.0
Strict Low Middling	27.00	33.00	1.205	1.095	1.035	1.095	4.3	3.9	3.7	3.9	3.5	3.2
Low Middling	26.25	32.00					4.4	4.0	3.6	4.0	3.6	3.1

(Taken from Bulletin No. 3 Bureau of Railway Economics, March, 1924.)

TABLE II
CATTLE AND CALVES

Market and State from which shipped	Num- ber of head	Total weight of stock (lbs.)	Average weight per head (lbs.)	Total price paid by purchaser	Freight charge	Other costs of distri- bution	Net proceeds to seller at shipping point	Net pro- ceeds to seller per head	Per hundred pounds				Per cent of price paid by purchaser				
									Price paid by purchaser	Freight charge	(Other costs of distribution)	Net proceeds to seller	Freight charge	(Other costs of distribution)	Net proceeds to seller		
<i>To Chicago, From</i>																	
Colorado	27	29,530	1,094	\$2,933 00	\$157 55	\$57 97	\$2,737 18	\$101 38	\$10 06	\$3 50	\$0 20	\$9 27	5 3	2 0	92 7		
Illinois.....	165	184,000	1,116	13,033 72	433 39	273 71	12,326 62	74 71	7 08	24 15	6 69	6 69	3 3	2 1	94 6		
Indiana	131	115,230	879	8,203 46	258 34	213 65	7,821 47	59 71	7 20	22 19	6 79	6 79	3 1	2 6	94 3		
Iowa.....	13,914	12,928,740	923	1,060,825 11	44,751 23	20,551 32	995,462 56	71 54	8 21	35 16	7 70	4 2	2 0	13 8			
Kansas	155	176,190	1,137	13,370 01	83 23	316 89	12,782 89	82 47	7 91	48 18	7 25	6 0	2 3	91 7			
Michigan.....	284	244,689	902	16,173 13	759 68	482 76	14,533 49	52 58	6 61	31 20	6 10	4 7	3 0	92 3			
Minnesota.....	737	615,930	814	3,112 86	2,271 06	1,083 48	35,798 32	47 28	6 36	37 18	5 81	5 8	2 8	91 4			
Missouri.....	1,421	1,393,670	981	122,711 40	4,693 52	2,129 37	116,068 51	81 69	8 82	34 15	8 33	3 8	1 7	14 5			
Montana	2,198	1,812,969	861	131,409 79	12,318 77	4,921 51	84,160 51	39 02	5 56	68 27	4 04	12 2	4 8	83 0			
Nebraska.....	665	706,761	1,063	67,374 63	3,315 26	1,134 15	63,125 22	94 03	9 56	47 16	8 93	4 9	1 7	13 4			
New Mexico	67	49,330	736	3,466 31	324 88	139 07	3,322 64	52 58	8 08	66 28	7 14	8 1	3 5	88 4			
North Dakota	291	287,040	986	16,782 78	1,609 38	827 39	14,346 01	49 30	5 85	56 29	5 00	9 6	4 9	85 5			
Ohio	171	197,349	1,154	17,489 71	617 38	307 08	16,565 25	96 87	8 86	31 16	8 39	3 5	1 8	94 7			
South Dakota	1,635	1,738,810	1,063	152,921 52	7,969 80	3,098 28	142,243 49	87 00	8 79	44 17	8 18	5 0	2 0	93 0			
Texas	53	43,609	823	1,770 09	327 80	130 84	1,311 36	24 74	4 06	73 30	3 01	18 5	7 4	74 1			
Wisconsin	159	121,370	761	5,196 76	437 62	241 05	4,323 09	28 46	4 28	35 20	3 73	8 3	4 6	87 1			
Wyoming	85	69,140	513	3,770 07	418 10	165 42	3,195 55	37 59	5 47	61 24	4 62	11 1	4 4	84 5			

(Bureau of Railway Economics, Livestock Bulletin No. 6, Dec. 1924.)

TABLE III
FREIGHT RATES PER CWT., ON WHITE POTATOES TO DIFFERENT MARKETS,
SHOWING VARIATION DUE TO DISTANCE

Shipping Point	Baltimore, Md.	Boston, Mass.	Cincinnati, Ohio	Cleveland, Ohio	Denver, Colo.	Detroit, Mich.	New York, N. Y.
Greeley, Colo.	1 185	...	.87	.93	185	92	1 215
Twin Falls, Ida.	1 245		1 02	1 08	.59	1 075	1 245
Caribou, Me.	.655	395	..	.64	..	.	555
Cheboygan, Mich.	625	685	.405	.37	..	.315	.60
Greenville, Mich.	.49	.55	.31	.29	.	.225	.52
Moorhead, Minn.	795	.96	.56	.575	.	.56	825
Freehold, N. J.	335	32	...	.40	.	.44	155
Atlanta, N. Y.	.285	335	..	.27	.	.	285
Peru, N. Y.	365	29	.	.435	...	..	32
Riverhead, L. I.	.385	43	.59	.50	.	.	19
Grafton, N. D.	.	.	.58	.595	..	.58	.
Lynnport, Pa.	.285	.	.	..	..	..	.285
Charleston, S. C.	.42	63	.555	.825	..	.83	445
Machipongo, Va.	.27	.415	.49	.405	.	.44	34
Waupaca, Wisc.	.64	.71	385	.40	.	.385	67

(Data taken from Bulletin No. 5, Potatoes, October, 1924, Bureau of Railway Economics.)

Table IV shows freight rates, farm prices, and percentages of freight of farm prices on wheat from different producing sections to various markets, for the 1923 season.

It will be noted that there is a wide variation in these percentages depending upon the market prices and the distances from market.

TABLE IV

Date	1		2		3		4		5	
	A	B	A	B	A	B	A	B	A	B
8-17	1.05	5.14	.67	23.28	.88	15.34	.82	26.34	.76	20.53
9-14	1.07	5.04	.68	22.94	.96	14.06	.95	22.76	.90	17.33
10-12	1.07	5.04	.74	21.08	1.02	13.23	1.00	21.60	.96	16.25
11-9	1.04	5.19	.69	22.61	1.00	13.50	1.00	21.60	.96	16.25
12-7	1.01	5.35	.69	22.61	.98	13.78	.93	22.23	.94	16.60

1. Spring No. 1 from LaSueur, Minn., to Minneapolis, Frt. rate 5.4¢ per bu.

2. Mixed Durum No. 1 from Hoven, S. D., to Minneapolis, Frt. rate 15.6¢ per bu.

3. Hard No. 1 from Cherokee, Okla., to Kansas City, Frt. rate 13.5¢ per bu.

4. Hard Winter No. 1 from Camargo, Okla., to Kansas City, Frt. rate 21.6¢ per bu.

5. Red Winter No. 3 from Galesburg, Kan., to St. Louis, Frt. rate 15.6¢ per bu.

A. Farm price.

B. Freight percentage of Farm Price.

(Data taken from Bulletin No. 1, Grains, January 1, 1924, Bureau of Railway Economics.)

APPENDIX C

SOURCES OF FOOD SUPPLIES

The average consumer has no idea of the relatively wide source of the food supply of a city. The following three tables show the state of origin of potatoes, apples, and cabbage received in Chicago, Detroit, Kansas City, and New York during the year 1923.

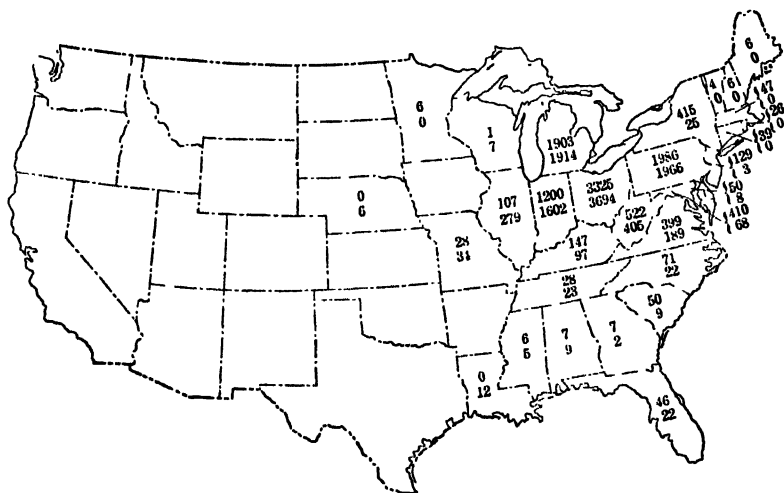


FIG. 40. — A map showing destination of car-lot shipments of Michigan potatoes. Upper figures are for the season 1922-23. Lower figures are for the season 1921-22. (From Michigan Agricultural Experiment Station Special Bulletin No. 137.)

TABLE I
POTATOES
(Car-lots)

State of origin	Chicago	Detroit	Kansas City	New York
Maine .....	.....	.....	.....	6515
Vermont .....	.....	.....	.....	5
New York .....	.....	.....	.....	6019
New Jersey .....	.....	47	.....	438
Pennsylvania .....	.....	.....	.....	45
Delaware .....	.....	.....	.....	24
Maryland	13	.....	.....	354
Virginia	532	398	.....	2996
North Carolina	130	54	.....	667
South Carolina	66	83	.....	1664
Georgia	3	3	.....	5
Florida	160	60	9	1190
Ohio .....	.....	4	.....	4
Indiana	3	1	.....	1
Illinois	97	3	.....	1
Michigan	562	1634	.....	431
Wisconsin	5222	78	4	334
Minnesota	1865	90	676	57
Iowa	4	.....	2	.....
Missouri	267	69	24	.....
North Dakota	470	.....	553	9
South Dakota	515	.....	29	.....
Nebraska	238	5	89	.....
Kansas	1139	47	86	1
Kentucky	37	52	.....	.....
Alabama	330	8	20	.....
Mississippi	6	.....	.....	.....
Louisiana	111	1	64	.....
Texas	56	2	75	.....
Oklahoma	263	.....	97	.....
Arkansas	60	.....	21	.....
Montana	147	.....	17	3
Wyoming	81	.....	25	.....
Colorado	280	1	308	2
Utah	33	.....	46	8
Idaho	1538	130	254	374
Washington	21	.....	4	.....
Oregon	101	.....	3	.....
California	47	.....	10	.....
Imports .....	.....	1	.....	186
Unknown	39	47	1	1
	14,436	2818	2417	21,330

(Data taken from reports of the U. S. Bureau of Agricultural Economics.)

TABLE II

APPLES
(Car-lots)

State of origin	Chicago	Detroit	Kansas City	New York
Maine .....	.....	.....	.....	26
New Hampshire ..	.....	.....	.....	5
Vermont .....	.....	.....	.....	58
Massachusetts ..	.....	.....	.....	36
New York	414	297	1	6513
New Jersey .....	..	..	.....	60
Pennsylvania ..	15	..	.....	314
Delaware	23	55	.....	149
Maryland	7	.....	.....	257
Virginia	6	.....	.....	1109
West Virginia ..	14	2	.....	523
North Carolina...	.....	.....	.....	1
Ohio	14	.....	.....	.....
Indiana	26	..	1	.....
Illinois	911	36	5	..
Michigan	2673	605	13	32
Wisconsin	93	.....	3	8
Iowa	12	.....	1	.....
Missouri	205	..	311	4
South Dakota....	1	..	..	..
Nebraska	12	..	.....	1
Kansas	2	.....	160	1
Kentucky .....	..	1	.....	..
Tennessee .....	.....	1	.....	..
Texas	4	.....	.....	.....
Arkansas	5	.....	6	..
Montana	12	.....	.....	196
Colorado	133	.....	59	2
New Mexico	34	..	3	2
Utah	67	..	40	1
Idaho	458	60	156	172
Washington	4498	623	536	1341
Oregon	550	58	182	1100
California	161	43	20	587
Imports	13	.....	.....	32
Unknown	1	1	10	8
	10,364	1782	1507	15,538

(Data taken from reports of the U. S. Bureau of Agricultural Economics.)

TABLE III

CABBAGE

(Car-lots)

State of origin	Chicago	Detroit	Kansas City	New York
Massachusetts.....	.....	.....	.....	12
New York.....	50	42	13	1511
Pennsylvania.....	.....	.....	.....	1
Maryland.....	7	.....	.....	62
Virginia.....	1	.....	.....	852
North Carolina.....	.....	2	.....	15
South Carolina.....	2	25	.....	918
Florida.....	14	2	.....	304
Ohio.....	4	.....	.....	1
Indiana.....	2	.....	.....	.....
Illinois.....	91	.....	2	.....
Michigan.....	91	18	.....	.....
Wisconsin.....	556	62	136	.....
Minnesota.....	2	.....	89	.....
Iowa.....	5	.....	3	31
Missouri.....	11	1	.....	.....
Kentucky.....	18	10	.....	.....
Tennessee.....	63	52	.....	.....
Alabama.....	276	71	17	4
Mississippi.....	188	64	29	.....
Louisiana.....	94	26	21	3
Texas.....	117	5	74	9
Arkansas.....	1	.....	8	.....
Colorado.....	1	.....	104	.....
Utah.....	.....	.....	1	.....
California.....	58	13	5	16
Imports.....	18	.....	1	242
Unknown.....	6	8	.....	.....
	1685	401	503	3981

(Data taken from reports of the U. S. Bureau of Agricultural Economics.)

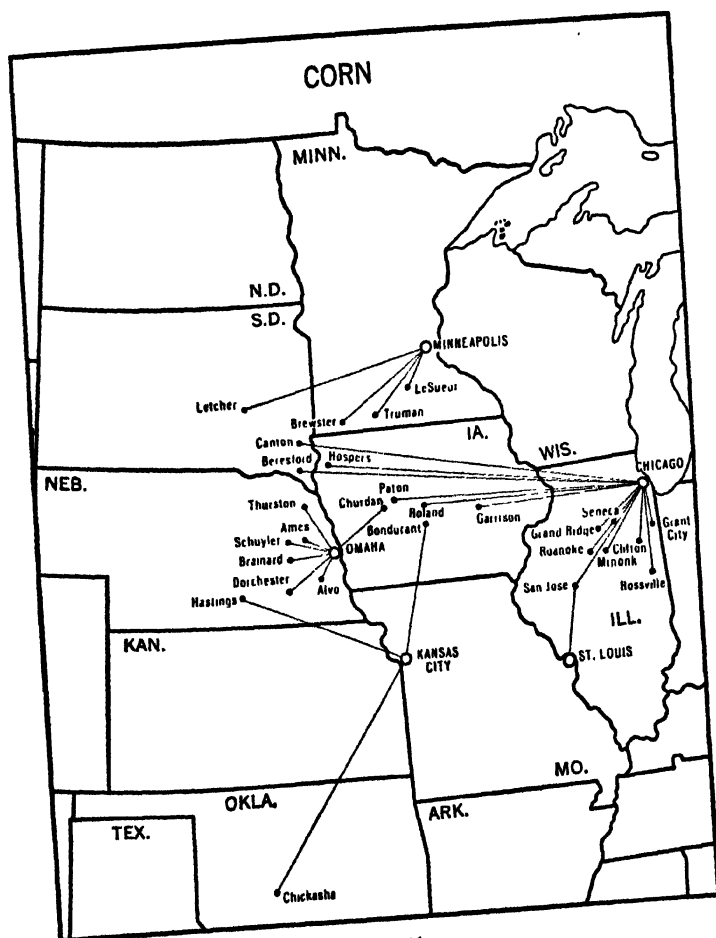


FIG. 41.

Figs. 41, 42 and 43 show the points of origin and destination of grains. (Courtesy Bureau of Railway Economics.)

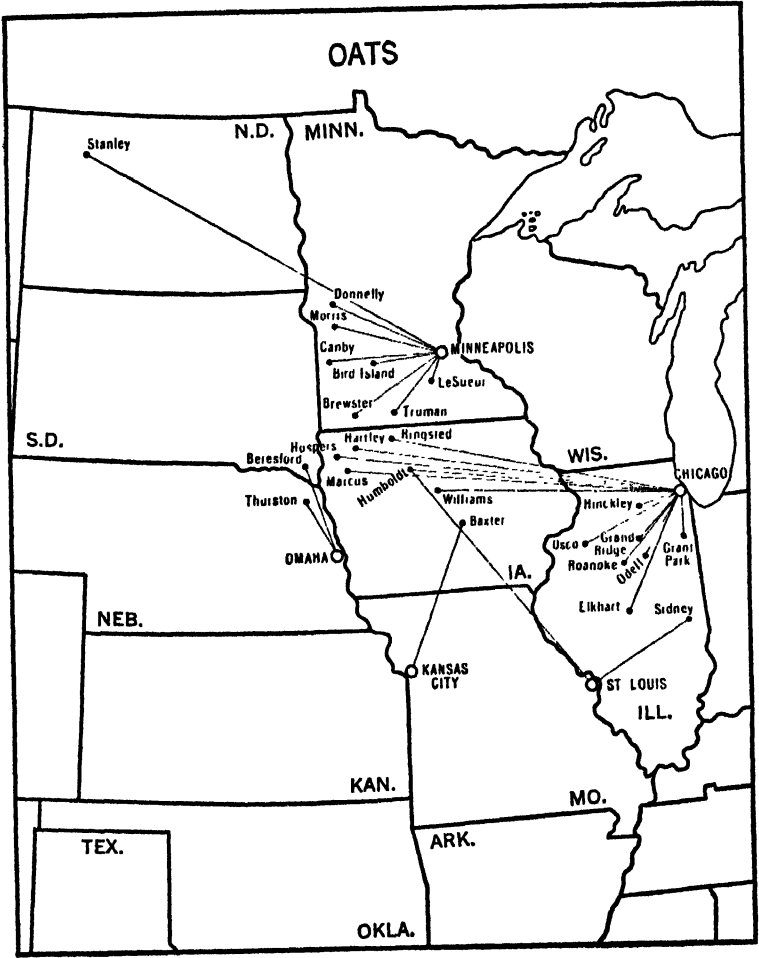


FIG. 42.

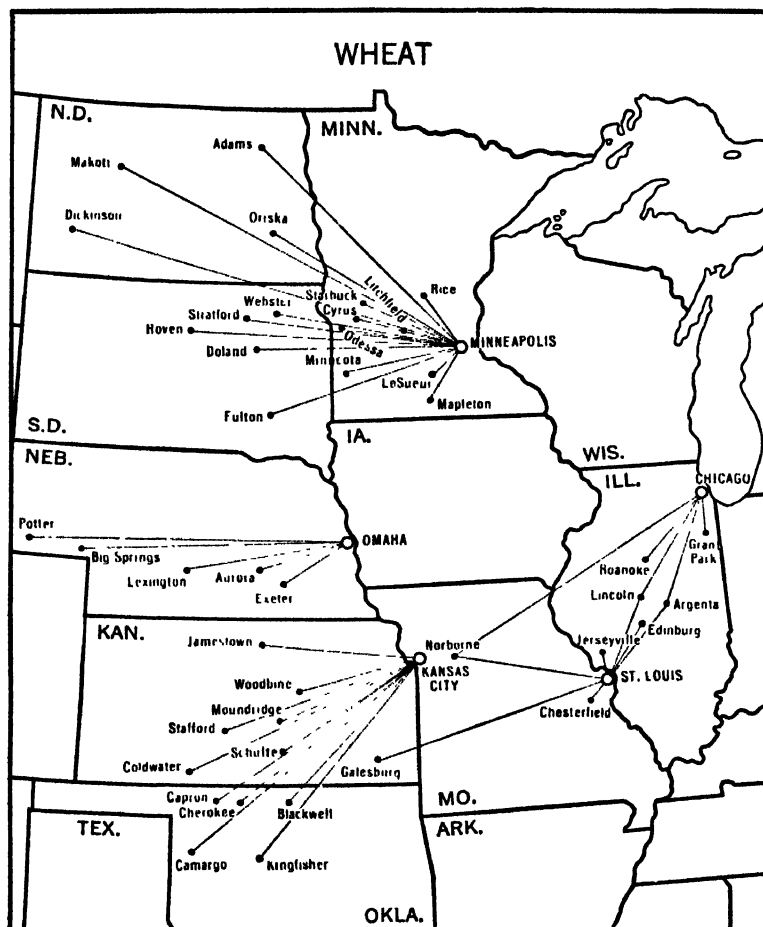


FIG. 43.

CATTLE AND CALVES

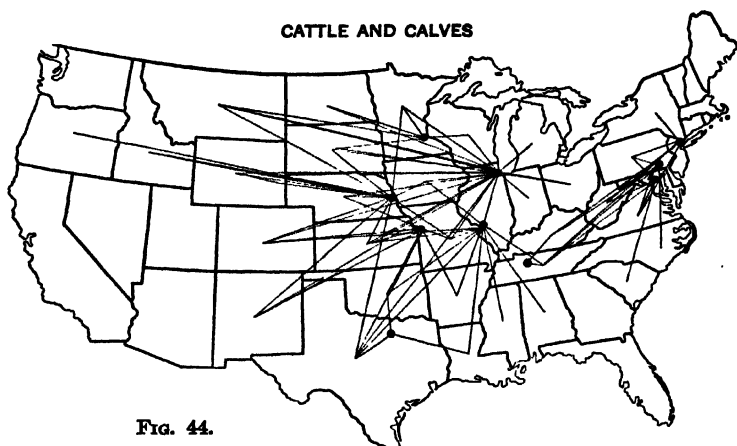


FIG. 44.

HOGS

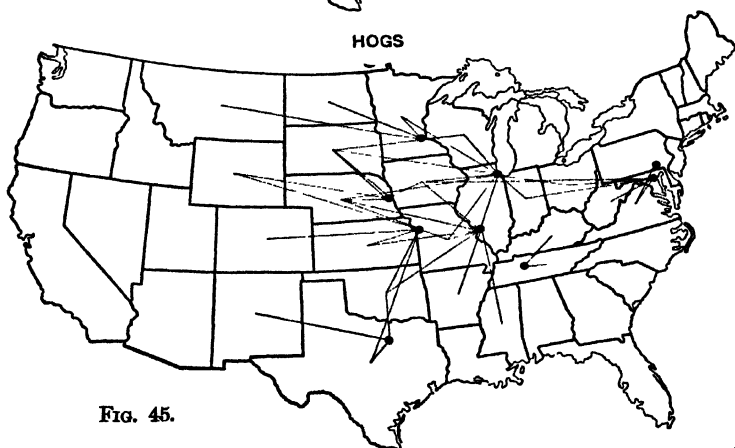


FIG. 45.

SHEEP

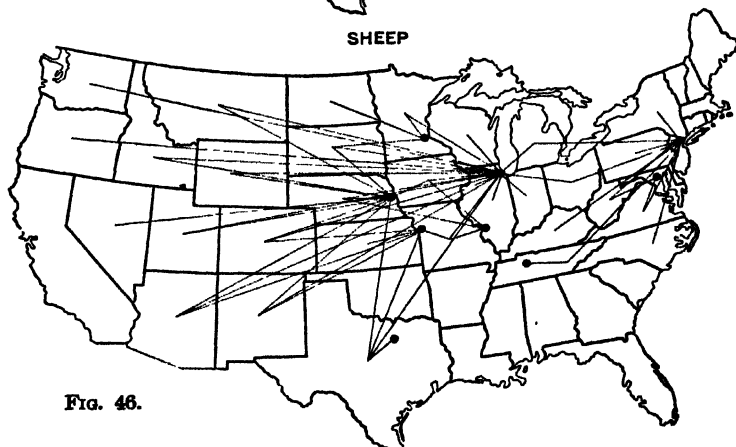


FIG. 46.

Figs. 44, 45 and 46 show the points of origin and destination of livestock ship-

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